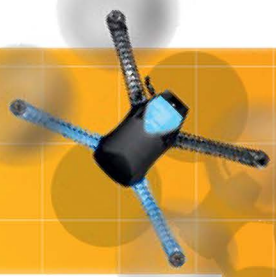
THE WAR FOR YOUR EARS **APPLE MUSIC** VS **SPOTIFY**

STUFF

GADGETS / APPS / GEAR



RISE OF THE DRONES

Following, 4K-filming, farming...

...delivering, detecting, defibrillating...

...meet the next generation of aerial robots

July 2015
Middle East Edition
A Motivate Publication

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JAVA JUICERS
The kit you need to pour the perfect cup of joe

GRAVITY RUSH
Learn how to build a soapbox supercar

FREE AND EASY
Get ready to jump aboard the Windows 10 hype train

Dell recommends Windows.

It leaves room for everything except the competition.

Sure, being the world's smallest 13" laptop looks impressive, but its size is just the beginning. With the world's first virtually borderless infinity display, available with UltraSharp™ QHD+ resolution, configured using an Intel® Core™ i7 processor, Windows 8.1, up to 15 hours of battery life* and built with carbon fiber and machined aluminum, the new XPS 13 is amazing both inside and out. Which is great news for everybody — unless you're the competition.

The new Dell XPS 13. Better by any measure.

*Battery Life based on BrowsingBench test run by Dell in November, 2014. Visit www.eembc.org for more information. System had 150-nits (40%) brightness, WiFi on, 4GB memory, Intel® HD 5500 graphics, Intel® Core™ i5 processor, 128GB SSD and FHD display. Test results should be used only to compare one product to another and are not a guarantee you will get the same battery life, which may be significantly less than test results and varies depending on product configuration, software, usage, operating conditions, power management settings and other factors. Maximum battery life decreases with time and use. Dell XPS 13 is a trademark of Dell Inc. Intel, the Intel Logo, Intel Inside, Intel Core, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Dell, the Dell logo and the Dell badge are trademarks of Dell Inc. ©2014 Dell Inc. All rights reserved.

intel inside™ CORE™ i7

WELCOME

I'm not going to lie, when it comes to robots that have the ability to hover within close vicinity of my face, I tend to fall into the "get that SkyNet-loving death machine away from me" camp. Perhaps it constitutes a mild case of automatonophobia (it's a real thing, look it up) or maybe I'm just not a fan of incessant buzzing, but any drone-specific coverage required in the magazine normally gets farmed out to someone else on the team who's a little more comfortable being that close to numerous spinning blades. That is, I should clarify, until now.

For our cover feature this month we took to the clear Dubai skies with a swarm of drones - if it buzzes, hovers or swoops, we tested it. If you haven't seen a drone in action yet, you should, it's a scientific fact that no other gadget is more likely to cause you to say "let's have a go". My colleagues were having such a grand old time piloting the great blue yonder that it was essentially a kind of robo-FOMO that helped me to overcome my fear, and once I'd aced a few triple backflips (full disclosure: I crashed the thing *a lot* before I managed to pull off that gnarly trick) there was no turning back. I, for one, am now ready to welcome our new airborne robot overlords.

Of course, it'll be a year or two before that happens. So, while we wait for sentient buildings and sandwichcopters to arrive let's take a look at what wonder tech the present has to offer. Enjoy the mag.

Mike Priest, Editor / mike@motivate.ae / @MikePriest

THIS MONTH IN THE STUFF APP EDITION

- Expert digital reviews on all of the reviews inside this magazine
- All-new features and tests designed just for iPad
- Stunning hi-res photos of the hottest tech
- Spiritual fulfilment

WHAT'S HAPPENING ONLINE?

- Up to the minute news and views on everything from Apple to Adidas
- Exclusive video reviews, previews, trailers and gadget challenges
- More games! The latest titles reviewed in full, with in-game galleries and more

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BPA WORLDWIDE FIPP

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www.porsche.com

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07.15

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- Democratise your playlist
- Go on a smartphone diet

WIN! p25

TOP 10 OF EVERYTHING

Looking to buy something but need a bit of advice? Turn to our *Stuff* Top 10s: our expert listings of all gadgetry, from **p61**

LAPTOPS

NEW ENTRY

Apple MacBook Pro 13in (2015)
★★★★★
All hail the one-port future
p69

TVs

HOT BUY

Panasonic TX-P55VT65B
★★★★★
Find the perfect boob-tube for you
p64

OUR PRICES
Prices in Hot Stuff are RRPs. Prices in features, tests and Top 10s are the best we could find from a reputable online retailer at the time of going to print.

HOTST

IT'S GOING TO BE HUGE

The new *Fallout* promises to take up months of your spare time with a post-apocalyptic Boston (USA, not Lincolnshire) to explore, and vast expanses of wasteland in which you'll be eaten, repeatedly, by Deathclaws.

IT'LL TEST YOUR METAL

Given how sumptuously realised New Vegas was way back in 2010, we're expecting jaw-drop injuries from a colourful Eastern seaboard adventure; better warm up your Xbox One/PS4/PC.

UFF

15 PAGES OF THE BIGGEST STORIES FROM PLANET TECH

IT'S GOT A DOG IN IT

Of course it's got a dog in it. *Metal Gear Solid* has one, *Call Of Duty* has one, and *Fallout 3* had DogMeat. No self-respecting console blockbuster would let you go into battle without an Alsatian to back you up.

HOT FOUR #1

WE'RE READY TO FALL IN LOVE AGAIN

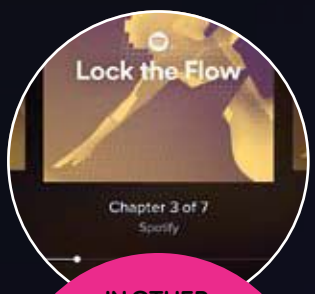
Fallout 4

In June 2015, just for a few minutes, the world dimmed. It wasn't a glitch in the power supply or ghosts in the machine; it was a significant portion of the geek population stopping whatever they were doing and watching the new *Fallout 4* trailer. Food fell unwrapped from the end of production lines, deals were left hanging in the Stock Exchange, sheep stood half-shorn. And why? Because it's been five years since the last game in the series, *Fallout: New Vegas*. Five long years since we took time off work just to squeeze as much as possible of Bethesda Studios' apocalyptic open-worlder into our minds. We still don't know a great deal about *Fallout 4*, but we know more than we did. And we know that there's going to be another planetary slowdown soon: the week that it comes out, none of us are doing any work.

As hot as... YouTube's servers

Xbox One, PS4, PC / fallout4.com

HOT FOUR #2



IN OTHER MUSIC NEWS #1

Spotify has had a significant update, including the addition of podcasts and video clips – think news clips and funnies, not *Ben-Hur*. The new Spotify Running mode detects your tempo and plays songs to suit.

WATCH OUT, SPOTIFY

Apple Music

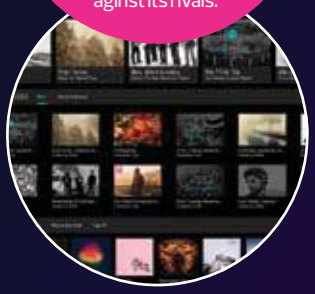
Apple has launched its much anticipated Spotify-rivalling music service. Beats founder Jimmy Iovine's launch preamble included an observation about how many disparate music services there are and, just for a moment, we thought he might say "So we decided not to bother." Instead Apple Music is a 30-million-track streaming service, with an accompanying 24-hour radio station called Beats 1 and themed playlists created, not by an algorithm, but by real people. A social media feature called 'Connect' will enable artists to share their darkest secrets (or lyrics) and you'll ask Siri to look up songs or playlists. The service will launch in over 100 countries, initially only on Apple devices but then with Android and Windows apps a few months later.

As hot as... Nelly's house

from US$10/month / apple.com/music

IN OTHER MUSIC NEWS #2

Jay Z's recently purchased Tidal streaming music service is no longer just trafficing in hi-res audio. The service has roped in big name stars such as Daft Punk and Madonna to help boost its profile aginst its rivals.



HOT FOUR #3

THE SONY RX1 OF LEICAS

Leica Q

Like the Audi of cars, or the San Pellegrino of fizzy drinks, Leica can be best described as the Leica of cameras. Which is to say that, while you can spend a lot less money for something very similar, it won't be a Leica. But it's not just the smart little red dot that has us contemplating a second mortgage: we're also taken by the Q's fixed 28mm f1.7 lens, behind which a full-frame 24MP sensor is mated to a custom processor that can push the ISO up to 50,000, giving it the low-light smarts of an owl that's just had two bowls of carrots. There's 1080p video at 30 or 60fps, NFC, Wi-Fi and a 3in touchscreen. Low-tech, this camera certainly isn't. Expensive, it certainly is. But anyone who says "Oh, a Leica, they're like the Apple of cameras" is just hoping you'll let them have a go.

As hot as... **Desmond Llewelyn**

US$4250 / leica-camera.com

HOT FOUR #4

VR GOING TO HAND IT TO YOU

Oculus Touch

By now your Oculus preparation should be well underway. You should be compiling the bits needed to build a kick-ass PC. You will have got rid of most of the furniture in your lounge to allow for lurching room, and unburdened yourself of any extraneous items such as partners, jobs and sporting interests. But you need to add another line to your budget. We now know that Oculus has teamed up with Microsoft and will be bundling an Xbox controller (with a PC connector) for basic game menu navigation and movement. But the real hand controls will be these newly announced Oculus Touch controllers. They feature various motion and position sensors, as well as vibration feedback motors so you can 'feel' objects in VR.

As hot as... your palms after the first hour
US$tba (due 2016) / oculus.com

WHERE YOU'LL FIND US IN 2016

EVE: VALKYRIE
Multiplayer spaceship dogfighting in immersive, high-definition VR with *Battlestar Galactica*'s Katee Sackhoff as a CO and guide? Shaddup and take our money already.

EDGE OF NOWHERE
Where we hope the Rift experience will excel is in roaming RPG adventures, like this wintry spookster, where you'll be able to make intuitive run-and-jump decisions.

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NOW WE KNOW THE DATE OF THE BEAST

Windows 10

US$free / microsoft.com

Twisty 'tops like the Acer Switch 10 are just the sort of thing that Win 10 likes to crawl into

29 July. That's the day you can kiss Windows 8 goodbye forever...

But only on your PC. *Stuff* has a man locked away in a room; his only task is to ride the 'fast' update cycle of Windows 10 pre-release builds. During the last Haribo delivery he reported that the bugs were getting fewer and fewer, the Windows 10 experience getting slicker. But this isn't Microsoft's first rodeo. And so it's concentrating on the PC launch before it gets to the phones, the HoloLenses, the Xboxes and the Surface Hubs. Don't worry: 29 July will still be a fun Wednesday.

There will be seven versions. An alarming prospect, but most of us can ignore the Enterprise and Education versions. For us, it's Windows 10 Home, Windows 10 Pro and Windows 10 Mobile – the new moniker for Windows Phone. Any of these three versions will be free for existing Windows 7 and 8.1 users. There doesn't seem to be any nasty small print about that. Home is the most basic, but is still your go-to choice for everything from desktops to hybrids and tablets, and it is packed with Cortana, Continuum and the new Edge browser. Pro only adds small business security tweaks and mobile working wotsits.

There's multi-state madness. Our man in the can is super-excited about how slickly Windows 10 handles switching between the keyboard and tablet modes. With a single desktop screen replacing Win 8's big-box, little-box chaos, the whole experience has been much finessed. It's an indicator that Continuum – the synchronicity of mobile and desktop apps – might actually work. Meanwhile, rumours suggest the Explorer-eradicating Edge browser will run Chrome and Firefox extensions, despite not being based on the same Webkit platform. How? Best ask Cortana. Make use of her being entwined into all versions of Windows 10.

THE EDGE BROWSER MAY RUN CHROME EXTENSIONS. HOW? BEST ASK CORTANA

Watchcraft and wizardry

LENOVO MAGIC EYE

Smartwatches are a dime a dozen these days. But not one of them can hold a candle to the Magic Eye smartwatch Lenovo showed off last month at the Tech World show in Beijing. At first glance it looks a lot like a Moto 360, and then it hits you – there's something above the strap, just below the display. And, well, it ain't pretty. But that's okay, because rather than being a uselessly small second screen, the Visual Interactive Display uses clever optical reflection trickery to produce virtual images that are 20 times larger than the watch face itself. It's no retina projection but still pretty neat, we reckon.
US$tba / lenovo.com

Music travels in waves

UE ROLL

Sherbert. Books. Wool. The list of things that aren't waterproof is both expansive and diverse. It includes, for example, most electronics. But not this new Bluetooth speaker from UE, which you can bungee to your boardies and take surfing. Hopefully, despite its watertight construction, it'll sound as good as the UE Boom – one of our favourite park blasters. It certainly has the same app, which can enable your speaker to become your alarm clock and pair with other speakers.
US$100 / ultimateears.com

SOMEBODY HELP US...

WE'RE GIDDY ABOUT WINDOWS 10

Continuum!
Ah, the prospect of sauntering into the Emirates lounge, plugging a smartphone into a monitor and nailing some spreadsheets using proper desktop Excel. (Mainly, the Emirates lounge bit.)

HoloLens!
Windows' motto used to be "Where do you want to go today?" Now it's "Wanna stay at home and explore dinosaur anatomy in VR using HoloLens?" And the answer is "Yes".

Actualness!
Not a trademarked feature, but a revolutionary aspect of Windows 10 is how real it is. Preview builds of the OS have been available to pretty much any Tom, Rick or Jane for months. No smoke. No mirrors. We know how it's going to be.

HARD DRIVING

That guy isn't paying attention to the road. Not to worry, though, because he's in Nevada and there's no traffic. Also, he's in the Freightliner Inspiration, a self-driving truck. In an industry where a single bit of unplanned braking can smash the fuel budget, this is big news. A never-drowsy computer faultlessly following the lines and adjusting for camber and windage could save money, and lives, perhaps. And the planet! But there are some fairly big bridges to be crossed first, such as being able to test them anywhere other than Nevada's wide open spaces. The Al Ain road, this is not.

NEWS FEED

THE NETWORK THAT DOESN'T CHARGE

US network FreedomPop is to launch its free phone service in the UK. So long as you have a phone to use, a FreedomPop SIM will give users 200 minutes, 200 texts and 200MB for free. Sounds good, here's hoping for a Middle East release in the near future.

PAYETH NO MORE

Summer metal-fest Download is to go entirely cash-free this year, making it the first of the UK's big outdoor shindigs to do so. Progressive rockers will upload funds to the Dog Tags website and pay for food, drink and ill-advised Slipknot T-shirts with an RFID wristband.

EYE PHONE

Oh, your iPhone scans your thumb, does it? Big whoop: Fujitsu's new Arrows NX F-04G (snappy name, guys) has a built-in iris reader, like the biometric eye scanners at airports. So now the only way a criminal could access your data would be if... oof. Actually, maybe we'll stick with passwords.

STARTMENU

The latest startups, crowdfunded projects and plain crazy ideas

KICK STARTER

Lap dancer

OVAL

Oval looks a bit like Jony Ive was tasked with building a flying saucer that doubles up as a musical instrument. This digital handpan, about the size of a dustbin lid, will excite fans of percussion, given that it enables a tactile and organic means to play music, backed up by an electronic brain. The case is hardy, and the seven pads are velocity-sensitive. The device is MIDI-compliant and so can work with apps and DAWs to trigger anything from percussive sounds to complex loops. And as each pad has an illuminated section, Oval can be transformed into a giant-sized Simon game — albeit a rather pricey one.

from €500 / ovalsound.com

BACK IT

STACK IT

SACK IT

KICK STARTER

A shameless plug-in

VOLTUS

Inventors are figuring out ways to turn the MacBook's sole USB-C port into a virtue. Voltus combines a 35Wh battery and hub. At home, it sits between your power cord and Mac, charging and enabling you to connect USB devices. On the move, it acts as hub and power source for your MacBook and other juice-demanding devices.

US$150 / getvoltus.com

KICK STARTER

A handy box of buttons

COOPY

Daftly named, but deftly capable, this tiny pentagon is a very capable shortcut trigger. Each button has a unique feel, making it simple to fire off pre-defined commands from your smartphone. Coopy is also location-aware, so you could use it to control the garage door on arriving home.

from US$30 / coopy.io

KICK STARTER

Let's get physical

BLOXELS

Bloxels attempts to literally get you (and your child) to build your own games. You slot the coloured cubes into a grid and your layout is interpreted by the app and converted into a game level. These creations can then be played or shared. Pixel Press has previous in this kind of thing, but Bloxels looks a lot more sophisticated. Nice.

$50 / projectpixelpress.com

INDIE GOGO

On another level

AUMEO

There are so many products that claim to offer awesome audio. But how can they? They don't know that you broke a pencil lead off in your ear in junior school and it's still there. Aumeo doesn't either. But it will give your hearing a quick test, applying a custom sound profile to your audio henceforth. Smart. What?

US$100 / aumeoaudio.com

SONY
I can see in the dark
with superior low-light photography
XPERIA Z3+
Dual
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25 SEPT

FIRST PLAY SKYLANDERS SUPERCHARGERS

PS4, PS3, Xbox One, Xbox 360, Wii U, iPad

This is just for kids, isn't it? Until now, we'd have agreed, but with *SuperChargers* introducing 20 land, air and sea vehicles, our inner sprog is starting to think it might be too good to waste on those pesky rugrats.

For the uninitiated, *Skylanders* uses a 'portal' platform on which real-life figurines are placed to transport them into the game. Position the Hot Streak model in place, for example, and a fully customisable hot rod will pop up onscreen. Plonk down its related owner, Spitfire, and you unlock more options, while progressing through the game opens up an ever wider array of mods: mix and match wheels, engines and bodywork.

Each ride feels different: Hot Streak is sticky and tactile on the road, a bit like racing an RC car around a massive car park, and the environments play a big part in the way the vehicles handle. Do you pick a submarine to dive under the procedurally generated ocean, or bounce over the waves in the hovercraft?

But multiplayer is where *Skylanders* really comes to life, mixing vehicle and on-foot challenges. Two player co-op continues in shared screen mode, but when using vehicles players tag-team so that one steers while the other shoots. For families of mixed abilities and ages it's a nice way to get everyone involved.

If you've upgraded to a new console recently there's no need to worry either – you can most likely still use your old portal. The Wii U can use the Wii portal and the PS4 can use the PS3 portal – although it's worth noting that the 360's portal won't work with the Xbox One. Boo.

[Words Tom Wiggins]

COMING TO A CONTROLLER NEAR YOU...

ASSASSIN'S CREED SYNDICATE

(PS4, Xbox One, PC / due 23 Oct)

Eight years after the original game was launched the *Assassin's Creed* World Tour finally rolls into Blighty, offering numerous opportunities for dodgy Russell Brand cock-er-nee accents, virtual historical sightseeing and myriad one-dimensional cultural stereotypes. Just like all the other games, then. Less repetitive than the pirate-based *Black Flag* (although we did dig the jolly sea shanties), the focus is on London during the industrial revolution; you play a twin brother/sister duo and there's a range of modes of transport to try, including trains, horse-drawn carriages and a zipline that you can fire from your cuff. All this should mean that traversing *AC*'s biggest ever map doesn't get tedious. And even if it does, you can always head to the nearest pub and join in an old cockney knees-up. After that, you can head back home and play *Assassin's Creed* again.

ARIZONA SUNSHINE (PC)

One of the first proper games to be confirmed for HTC's Vive headset, *Arizona Sunshine* proves that zombies are most definitely joining the VR revolution. While they might struggle with the headset thanks to their rotting flesh, their shambling should make them a little easier to hunt in the scorching heat, which the game's Dutch makers say is as big a killer as the flesh-hungry fiends themselves. They also reckon the Vive's motion controllers bring 'unprecedented realism to zombie shooting', which suggests they know something we don't about the undead.

FIFA 16

(PS4, Xbox One, PC, PS3, Xbox 360)

Just 22 years after *FIFA International Soccer* launched, *FIFA 16* will finally allow you to take control of women's teams. Twelve national sides are represented, including England, and they've been motion-captured in the same way that the men's teams have. If only Sepp Blatter were still around to appreciate the tightness of their pixel-perfect shorts. What a shame the horrible old toad's gone. Oh, and if you're offended by this, you deserve to be locked in a room with a hungry Luis Suarez.

ASSETTO CORSA (PC, PS4, Xbox One)

If *Project Cars* has got your engine purring for some more hyper-realistic racing on your console, one of PC gaming's most highly regarded sims is also making the jump to its lounge-friendly counterparts. *Assetto Corsa* lacks the bells and whistles of your *Forzas* and *Gran Turismos*, but its handling model is widely praised as one of the best in the business. This console version, due next year, has the same laser-scanned circuits as its PC cousin, including Silverstone, Spa and the Nürburgring's Nordschleife, plus over 100 different cars.

INCOMING

AUGUST
- UNTIL DAWN

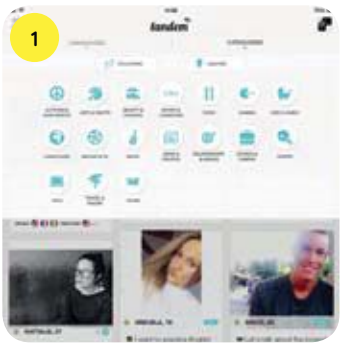
SEPTEMBER
- METAL GEAR SOLID 5
- NBA 2K16
- MAD MAX

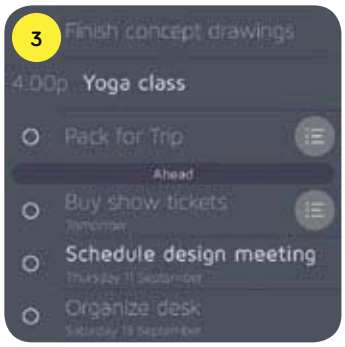
OCTOBER
- RAINBOW SIX: SIEGE

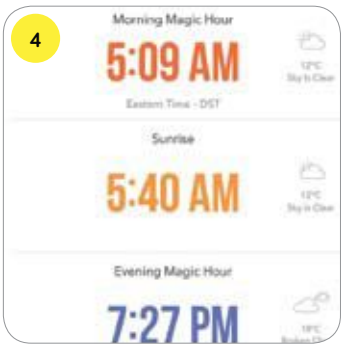
NOVEMBER
- STAR WARS: BATTLEFRONT III

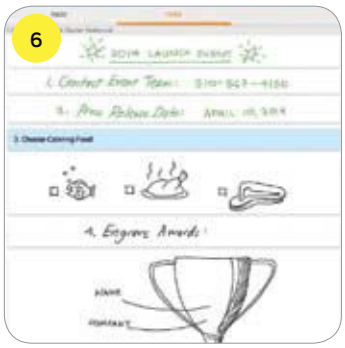
APPS

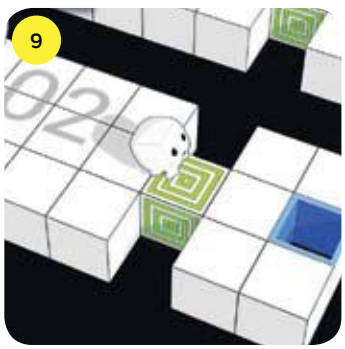
This month's mobile must-downloads











1 Tandem
US$free / iOS
By connecting via Facebook profiles, Tandem matches you up with like-minded people across the globe who are ready to help you practise a new language and develop their own skills.

2 Skiing Yeti Mountain
US$free / iOS, Android
An isometric, one-touch skiing simulator... with a twist. *Skiing Yeti Mountain* offers all the fun of the sport, undercut with the dark mystery of an alpine beast that keeps carrying off locals...

3 Glass Planner
US$free (+IAP) / iOS
Want your reminders and your calendar in the same place? Glass does just that. A sleek design means it's easy to combine daily tasks; all it needs now is matching iPad and Android versions.

4 Lumy
US$1.99 / iOS
This app helps photographers catch the 'magic hour' at the start and end of the day when the light is best. This version lets you drop exact map pins, as well as adding Apple Watch compatibility.

5 Great Little Place (GLP)
US$free / iOS, Android, Windows, Blackberry
If you want to find an esoteric cafe or venue in your city, this is your guide. A boon for larger cities, but as it's user-updated, the app still lacks content for smaller areas.

6 Livescribe for Android
US$free / Android
Livescribe users can finally connect their techy pens to their Google devices – transferring recordings and PDF copies of handwritten notes to their KitKat-or-better tablets and phones.

7 Wi-Fi Mapper
US$free / iOS, Android (beta)
Another app that relies on the community (yay!) and Facebook (hmm). But, with an apparently huge and constantly updated database of free Wi-Fi hotspots, it might be worth the risk.

8 Earthcore Shattered Elements
US$free / iOS
A four-elemental card-matching game, *Earthcore* follows Bushnell's Law perfectly: each stage becomes increasingly difficult as you unlock more creatures and abilities.

9 Test Chamber
US$free / iOS, Android, Windows
A stylish exploration game based on finding the Infinite World, *Test Chamber* features a series of non-Euclidean puzzles for a *Portal*-esque fix on a handheld device. ($7 gets you a Steam desktop version.)

I'M STILL USING...

PODKICKER
Fraser Macdonald
consulting editor

The word 'just' is tossed about in this industry like penny sweets. 'Just' charge it for 5-7 hours. 'Just' back up all your files. But one I particularly roll my eyes at is: "Why do you need a radio? 'Just' stream it from the app." I live in Dubai, yet 4G coverage is sporadic, my cable broadband is unreliable and

my used-and-abused Galaxy Note has its off-days. So, thanks, but I'll 'just' download podcasts of my favourite radio shows to the trusty Podkicker app. Short of a few unfriendly ads – the premium version's extra features sound dangerously sophisticated – my Note will instantly play *The News Quiz* or *More Or Less*, whether I'm at home or on the move.
from US$free / Android

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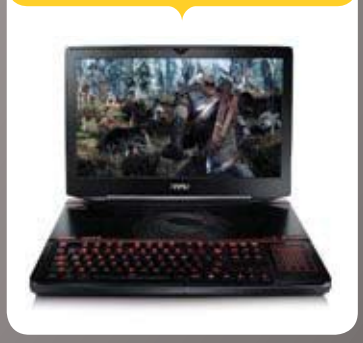
MSI AT COMPUTEX 2015

Last month in Taipei, MSI ramped up their arsenal of gamer-charged notebooks. We quite liked these three:

THE POWERHOUSE



GT80 Titan SLI

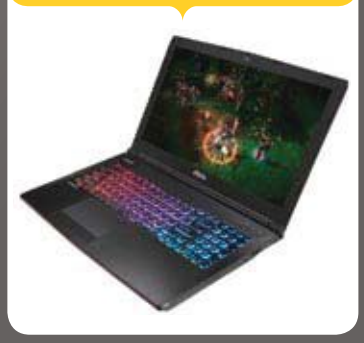
The jewel in MSI's gaming laptop crown, the GT80 is a powerhouse of the highest order. It harbours the latest Intel Core i7 processor and dual GTX 980M graphics cards but its pièce de résistance is a fully integrated mechanical keyboard for an authentic fragging experience. Oh, and the 18in HD screen is pretty swish too.

THE RETINA TRACKER

GT72 Dominator Pro

If you thought the Dominator Pro was a beast before, then you're in for a treat. The new GT72 now lets you control compatible games with your eyes thanks to a built-in Tobii Eyex camera. That's right, you can navigate through your favourite FPS, fraging fools simply by giving them an ice cold death stare.

THE AUDIOPHILE



GE62 Apache

Visual fidelity and speed are two thirds of a very important equation in gaming laptops – the other belongs to sound. MSI's GE series boasts Nahimic Sound Tech which delivers an immersive 7.1 surround sound experience from standard stereo speakers. Apparently it's used extensively in the aeronautics industry, so who are we to argue?

PHILIPS

The world's **slimmest** soundbar with **wireless subwoofer**

The Philips HTL6140B is a an innovative soundbar that is a sleek 2.98cm thin. Mount it anywhere and stream your favorite music or movies wirelessly with pristine sound quality.

Incredibly powerful for something so incredibly thin.

innovation + you

Available at:

Sharaf DG

Emax

PHILIPS

YOUR MONTH JUL

Strap in and hold on as we show you what's just around the bend...

02

TERMINATOR GENISYS

John Connor sends Kyle Reese back in time, but Skynet has moved the goalposts. In this timeline, a Terminator was sent to kill a young Sarah Connor, but she survived and has been trained to survive by a now old and weary cyborg Arnie. This could go on forever.

04

DUBAI SPORTS WORLD

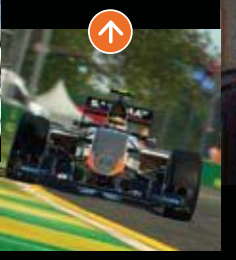
Dubai World Trade Centre

Don't let the oven-roasting weather deter you, there's no excuse for sitting on your couch and gaining weight. The DWTC turns into an indoor sportsman's dream with everything from football to basketball to tennis. All airconditioned, yay.

09

SAN DIEGO COMIC CON

Whether you're making the trip (like a less drama-ridden Pegg and Frost) or catching it all on the blogs, the world's biggest entertainment show is where we find out what to get excited about. Last year: *Avengers*. This year: more *Star Wars* details, please. And/or a Chewbacca onesie.



10

F1 2015

There's a waxwork creepiness in celebrity-accurate face coding, but if you really want to feel that you're rubbing race-suits with Hamilton *et al*, then nothing beats a new *F1* game. This one adds voice recognition so you can actually talk to your team. What's Verstappen you? Hit the Button.

17

ANT-MAN

Another Marvel filing cabinet is gleefully plundered, but the involvement of Edgar Wright (*Hot Fuzz*, *Scott Pilgrim*) and Joe Cornish (*Attack The Block*) should make this very watchable. Ant-Man, played by Paul Rudd, will be in the next Captain America film too, so you have to watch this to stay curr-ant.

30

THREE MOMENTS OF AN EXPLOSION: STORIES

China Mieville

Fantasy, horror, alternate reality, politics – whichever of his various hats Mieville is wearing, this collection of short stories will be worth every penny. Not sure? Find a copy of 2008's *Perdido Street Station*.

WIN

WIN! AN LG P7 MUSIC FLOW PORTABLE SPEAKER

Apparently the young 'uns nowadays are all listening to this 'pop' music. Bob Haley & The Crickets, is it? We wouldn't know anything about that, but if you insist on blasting the latest chart anthems around your apartment, you might as well do it right...and the LG P7 Music Flow portable speaker is about as right as it gets. Don't be fooled by its petite stature though, at only a wee 7 inches across, this perky little blower still squeezes in up to 20W RMs of power ballad belting gusto. But sure, you can plug in any old device into any old speaker and play back *Hippy Hippy Shakes* to your heart's content. So what sets the P7 apart from the rest of the portable speaker crowd?

For starters it can be paired with any of the other speakers in LG's Music Flow arsenal to give you simultaneous playback across all the rooms in your pad, or a different song in every room. On it's own though, it still packs a wallop allowing connection with up to 3 devices via Bluetooth and the ability to stream music wirelessly from your smartphone or any other compatible device. The built-in battery is a stamina beast offering up to 10 hours from a full charge, which means it's perfectly suited for taking out and about on, say, a camping trip. Where it can be used to drown out that one guy who insisted on bringing his acoustic guitar thereby ruining things for everyone, making you a hero to all.

It'll even sync up with a compatible LG telly to give you a crisper audio experience when watching that marathon *Never Mind the Buzzcocks* binge session you have planned over a long weekend. The good news is, as a *Stuff* reader you have a chance to win one for your very own. And if you do, go ahead and blast whatever music you want as loud as you like, we don't care.

HOW TO ENTER

For a chance to win an LG P7 Music Flow speaker go to **stuff.tv/me/win** and answer this simple question:

HURRY! COMPETITION CLOSES ON AUG 1

UP TO HOW MANY DEVICES CAN YOU SYNC TO THE P7 VIA BLUETOOH AT ONCE?

A 100
B 33
C 3

For more info visit lg.com/ae

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All entries to be submitted by August 1, 2015. The prizes are as stated and no cash alternative is available. Prizes are non-transferable. The decision of Motivate Publishing is final and no correspondence will be entered into. For full terms and conditions see: *www.stuff.tv/me/terms-and-conditions-me*

THE ONE FOR BEGINNERS
Parrot
GPS
THE ONE YOU CAN'T LOSE

HIGH SPEC SKY TECH

A swarm of new drones has gathered in the sky ready to take 2015 by storm – and filming in 4K is just one of their many skills...

[**Words** Tom Wiggins **Pictures** Matthew Beedle]

1 Hover the top
These sensors on the bottom use sonar and visual feedback to calculate its position in the air, allowing it to hover in place when GPS isn't available.

2 Ready, steady, go
The DJI's gimbal is constantly fed data about the drone's movement to ensure it keeps the camera steady, even if you're flying it like you stole it.

THE ONE THAT SHOOTS 4K

DJI INSPIRE 1

from US$3400 / dji.com

If you stand in front of a hovering Inspire 1, its four propellers buzzing like a swarm of hornets in an anger management class, it's impossible not to think of the scene in *Robocop* when ED-209 malfunctions and turns that poor chap inside-out with its mounted machine guns. Fortunately the Inspire 1 isn't armed, but if you don't know what you're doing, its 2935g hull, 13in props and top speed of almost 50mph could do some damage.

However, it's a hugely capable drone, with a camera on a 3-axis gimbal that can shoot 4K video at 30fps, 1080p at 60fps and 12MP stills to an onboard micro SD card. After takeoff the carbon fibre arms lift the propellers away from the camera's field of vision to give an unobstructed 360° view, while the live video feed can transmit to a paired phone or tablet up to 2km away.

The Inspire 1 comes with one controller but it's possible to add another and hand over the camera controls to a co-pilot while you concentrate on keeping the drone in the sky. It constantly keeps track of its own position to ensure stability in the air and remembers where it took off from, updating its home point if you move. It's like having the world's most advanced and obedient boomerang.

HANDS ON

JOOLS WHITEHORN
CONTRIBUTOR

From the moment you see it, it's obvious the Inspire 1 is no toy: it's sleek and sculpted, reminding me of a sentry turret robot from *Portal*. The controls are a mix of user-friendly automation and pro-level customisability. Swiping an on-screen slider triggers the auto-takeoff sequence, lifting the drone to around head height and smoothly raising its legs. Once aloft, there's an abundance of on-screen options within the app, as well as wheels and extra shoulder buttons on the controller for quick operation of camera settings. Like the smaller DJI Phantom series, the Inspire 1 is nimble and responsive, though its extra weight is obvious from the bassier prop noise and more purposeful movement. Its speed is impressive – essential for tracking shots of vehicles and fast flybys – and only slightly terrifying. It's not for casual flyers, but personally I can't wait to give it another go.

Flying webcam
The controller has a mount for your phone, with the free app giving a 720p live video feed or map view, and syncs footage to the phone's memory while you fly.

THE RULES OF THE SKY

1 WEIGHT A MINUTE
Unless you intend to fly a drone for commercial purposes, or it weighs over 20kg, you don't need permission from the CAA.

2 LINE OF SIGHT
Always keep your drone in line of sight, and no more than 500m horizontally and 122m vertically away from the pilot.

3 KEEP YOUR DISTANCE
Keep it 50m away from people, buildings or cars. If you're flying near large groups, make it 150m or get permission.

4 PRIVATE EYES
Be aware of privacy laws. Don't snoop in people's gardens and then publish the pics or video online, even if it's just on social media.

5 GET OFF MY LAND
Seems obvious but never fly one in restricted airspace, ie: near an airport. They don't like that one bit. Read the full rules at dcca.gov.ae

1 A clear head
The head where the camera is stashed can move independently of the rest of the drone, so it'll waggle in the wind without giving the pilot seasickness.

2 Props for the props
The eXom's four propellers are protected by these thin carbon fibre shields, although if the sensors do their job they shouldn't be needed.

THE ONE FOR THE PROS

SENSEFLY EXOM

US$tba / sensefly.com

If you're looking for a drone to fly around the local park, the Sensefly eXom is not for you. Despite its friendly, insectoid looks, this is a drone designed for professional mapping, inspection and suchlike, not terrorising the local shrubbery.

Rather than relying on GPS for navigation, the eXom is absolutely packed with sensors: five vision sensors that work a bit like those annoying parking beepers on your car, plus five ultrasonic proximity sensors, which all work together so the pilot can concentrate on what the HD camera's seeing rather than what it might be about to crash into. And it's not just video and stills that the cam can record: there's a thermal mode too. It can even do all three at once. The eXom's eye has a huge 270° vertical field of view, meaning it can hover beneath things and inspect what's above.

Getting it to fly where you want is a case of either specifying a zone of interest on the eMotion app, or activating ScreenFly mode, which allows you to tap on an object from the camera's live feed and let the eXom fly itself into place.

But all of this comes at a price. What exactly that is hasn't been made clear, but to give you an idea, Sensefly's fixed-wing eBee drone will set you back US$12,000.

ANOTHER OPTION

DRAGANFLYER X6
Four propellers good, six propellers better, right? Yeah, that's probably why we're not allowed one of these. But if you are, it comes with a 20MP Sony QX100 which feeds video back to a touchscreen on the controller, with a separate display below it for real-time telemetry.
US$9000 / draganfly.com

PRO TIPS

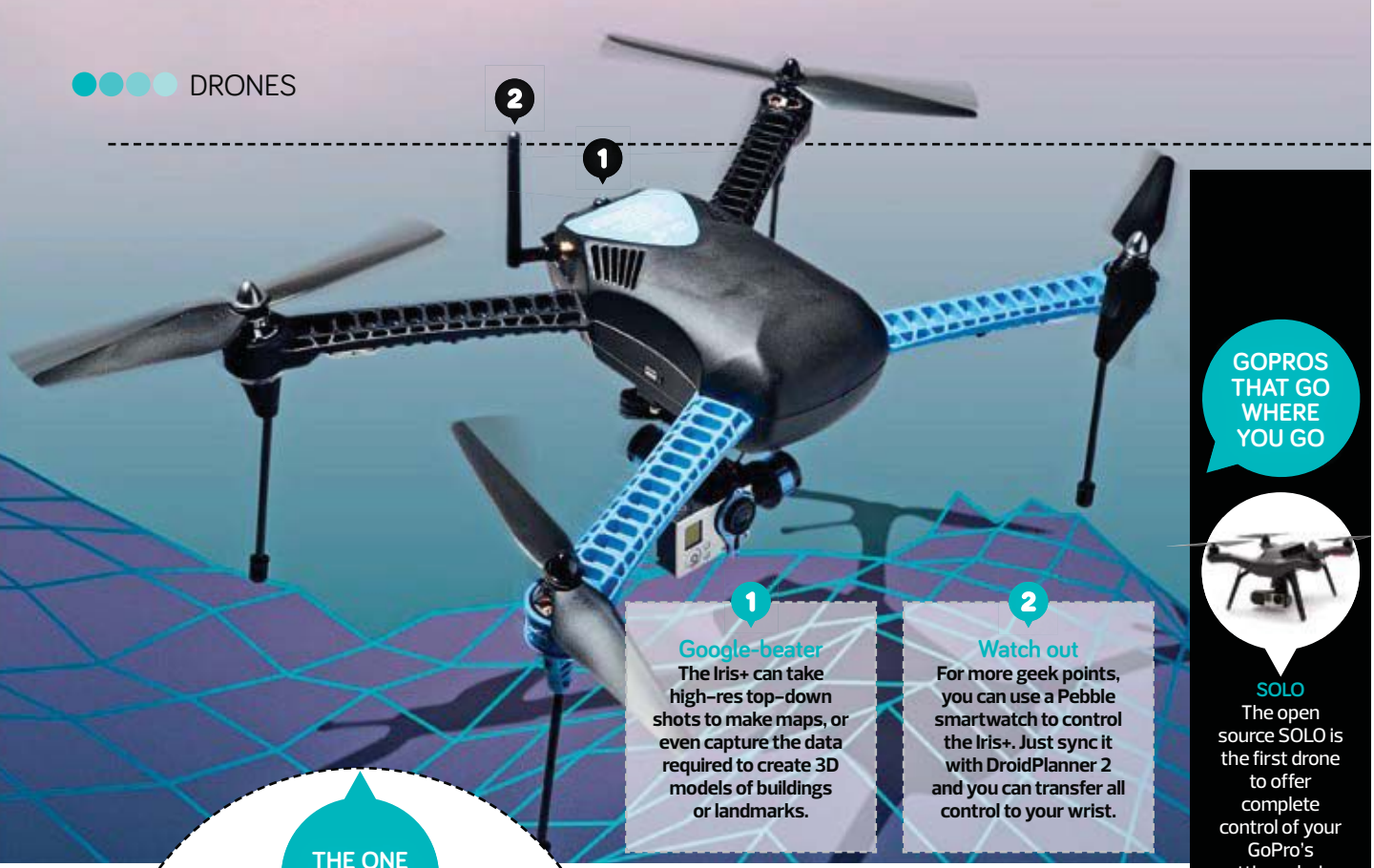
PHILIPPE FRANCKEN
FOUNDER OF CITY DRONES LTD

ONE CHECK IT OUT
Have a good look over the aircraft to ensure there's no obvious damage, and repair or replace any parts before flying. If the unfortunate does happen, it'll help you pinpoint the origin of the failure.

TWO PRACTICE MAKES PERFECT
Slowly work out your drone's limitations. Set a goal and work towards it until it has been mastered; don't go straight into copying what you've seen on YouTube.

THREE DON'T BLAME IT ON THE WEATHER, MAN
It's not recommended to fly in any precipitation, bad visibility, winds over 10m/s or low temperatures. The colder it is, the less flying time you'll get out of the batteries.

FOUR PREPARE TO FAIL
Familiarise yourself with the failsafe mode as it may be your chance to rescue your aircraft. If you fly a lot, get public liability insurance. There are some specific UAV plans.



1 Google-beater
The Iris+ can take high-res top-down shots to make maps, or even capture the data required to create 3D models of buildings or landmarks.

2 Watch out
For more geek points, you can use a Pebble smartwatch to control the Iris+. Just sync it with DroidPlanner 2 and you can transfer all control to your wrist.

THE ONE YOU CAN'T LOSE

3D ROBOTICS IRIS+

US$600 / 3drobotics.com

While DJI's Inspire 1 is for seasoned pilots only, and Parrot's Bebop comes with aerial training wheels, 3D Robotics' Iris+ hovers somewhere in the middle. It has a slight Meccano look about it, but it's pretty much ready to fly as soon as you open the box.

This Pro Kit comes with a motorised gimbal that screws on underneath, although the cheaper basic model just has a fixed camera mount at the front. For footage that's steadier than a heavily sedated rock you'll want the gimbal. The Iris+ doesn't come with a camera, but it's designed to hold a GoPro Hero 3 or Hero 4 Black – with the latter giving you 4K-quality video.

If it starts to run low on battery or strays out of range its built-in GPS will guide it back to where it took off from, but things really get good when you attach the bundled antenna to an Android phone or tablet, turning it into a touchscreen controller for the Iris+. A free app called DroidPlanner 2 allows you to draw routes on a satellite map for your drone to fly automatically, or you can put it in 3PV mode so it follows you – ideal for gnarly skiing or mountain-biking videos and high-altitude drone pics. It'll make using a selfie stick look positively understated.

THE ECO-DRONES

The Iris+ might not be able to take its eye off you, but BioCarbon Engineering's drones are more concerned with what's happening on the ground. That's not something you'd normally look for in a thing that's supposed to fly, but BE's objective is very much land-based. Deforestation destroys 26 billion trees a year and even the keenest, most green-fingered gardener would struggle to replace them at the same rate. And that's where the drones come in.

First the area to be replanted is mapped from the sky, then a specially adapted planting drone is sent around a pre-determined route to fire pre-germinated seed pods into the ground from around two metres up, at points identified from the maps by the BioCarbon Engineering team.

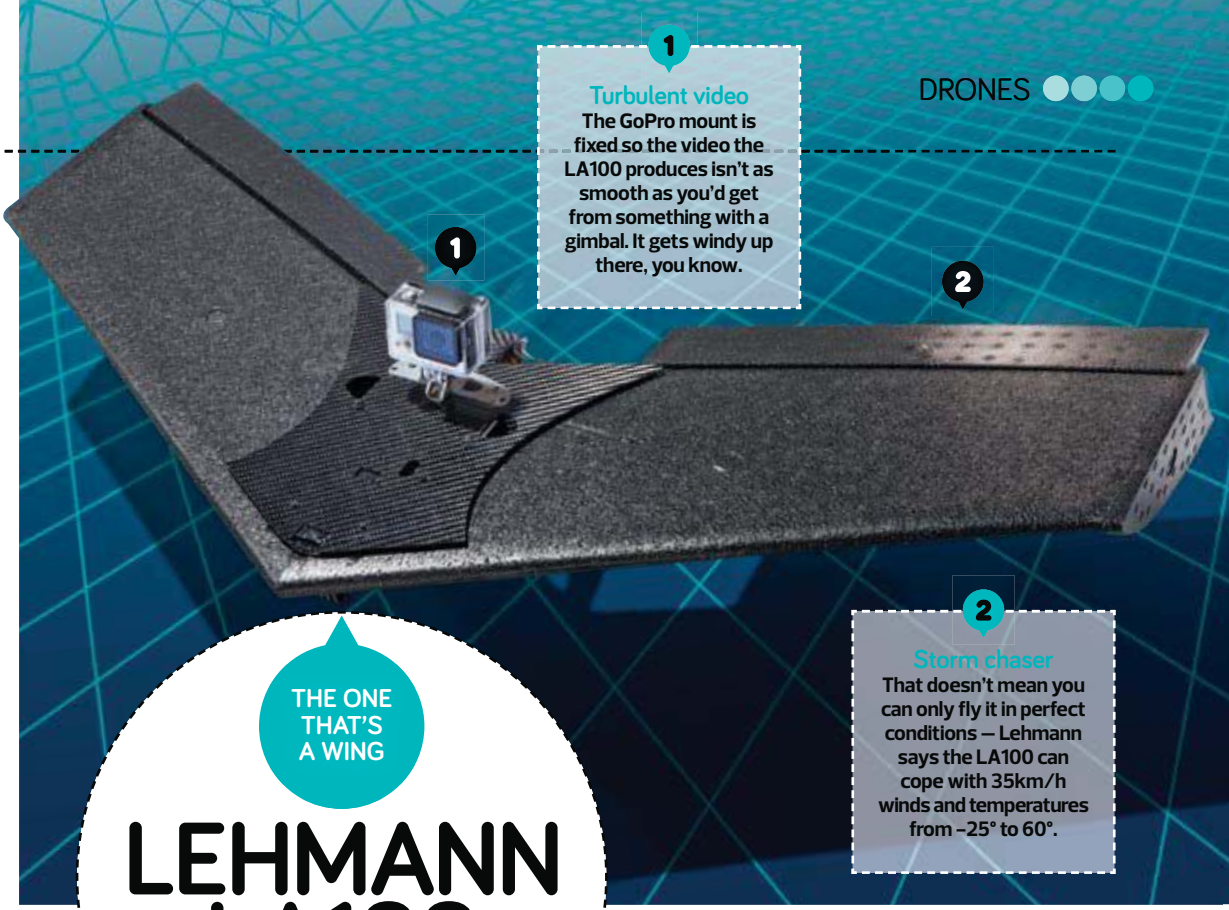
Does it work? Well, you'll have to wait a few years to see the results. Trees don't just spring up overnight, you know.

Control yourself
No, it's not an old-skool RC car controller – this is for the Iris+. It's great for intricate manoeuvres, but to unlock all of the drone's skills hook it up to your phone.

GOPROS THAT GO WHERE YOU GO

SOLO
The open source SOLO is the first drone to offer complete control of your GoPro's settings during each flight, saving you from having to land when you need to tweak things like resolution or framerate. Look for it in the Middle Eastern skies by month's end.
US$1300 / 3drobotics.com

AIRDOG
Man's best friend just got tougher with the AirDog, a GoPro-slinging drone that follows a wireless, waterproof AirLeash you wear on your wrist or attach to your bike. The AirLeash even lets you tweak some controls while flying.
US$1300 / airdog.com



1 Turbulent video
The GoPro mount is fixed so the video the LA100 produces isn't as smooth as you'd get from something with a gimbal. It gets windy up there, you know.

2 Storm chaser
That doesn't mean you can only fly it in perfect conditions – Lehmann says the LA100 can cope with 35km/h winds and temperatures from –25° to 60°.

THE ONE THAT'S A WING

LEHMANN LA100

US$1100 / lehmannaviation.com

With all these heli-drones it's easy to forget that the ones the military has been using for years are more often wing-based. Weighing in at 850g, with a 92cm wingspan, Lehmann Aviation's LA100 takes its cues from those, although without all the scary stuff. Simply attach your GoPro, fire up the prop and throw the LA100 into the air; it'll take it from there.

In fact, this is probably the only drone here that actually deserves the name, because once it's airborne you can kick back and watch it get on with the job. Or not – it doesn't matter. After it's left your hands you can't control the LA100 at all: no barrel rolls, no loop-the-loops, nothing. It'll spend the next five minutes flying a pre-programmed route within a 500m radius of the launch site at an altitude of about 100m, before landing gracefully at your feet with its photographic payload. It can even land on water.

Obviously all this means you can't adjust the camera while it's in flight, or get it to buzz your brain tower for the world's most terrified-looking selfie, but it should make it pretty difficult to crash and it's one of the simplest methods of getting started in DIY aerial photography. If you'd prefer a bit more control, the LA200 (US$1700) lets you plot a flightpath on a Windows 8 tablet.

Mission control
There are no controls for the LA100 as it flies itself, but this is the OperationCenter app, which is used to draw flight paths for other Lehmann drones.

MORE FIXED-WINGS

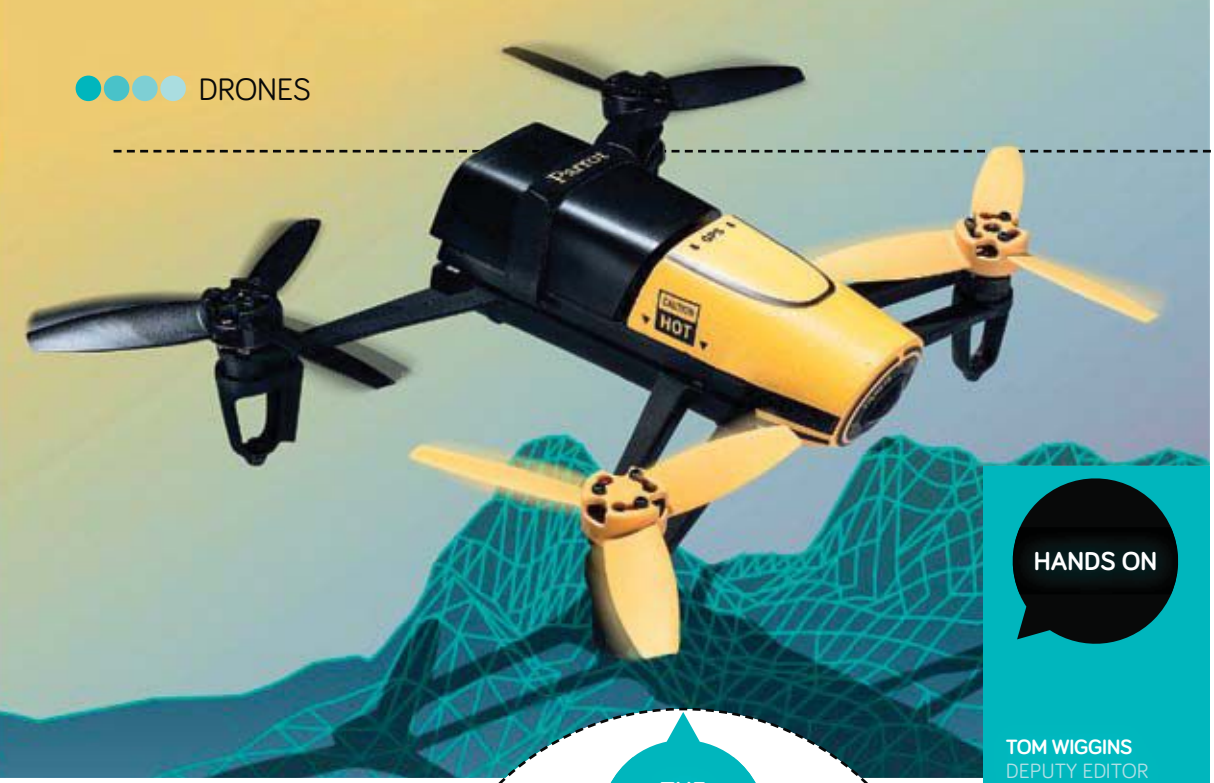
CARBON FLYER
Looking a lot like a paper aeroplane made out of carbon fibre instead of old trees, the Carbon Flyer is controlled via Bluetooth and is almost designed to crash. That doesn't mean it won't fly – it just won't mind too much when it inevitably makes an unscheduled landing.
US$150 / carbonflyer.com

SENSEFLY EBEE
The eXom's older sibling, this flying wing will also pilot itself, although the eMotion software allows you to adjust its flightpath, changing the altitude at specific points in order to capture more detailed info down low or avoid obstacles by flying high.
US$12,000 / sensefly.com

SOME DRONES YOU'D BE VERY HAPPY TO SEE

Most people might associate winged drones with nasty military business, but you don't have to look far to find them doing good. CATUAV, a company based in Barcelona, has developed a drone that can detect buried landmines using a combination of near-infrared, thermal and standard cameras. Someone still has to go in and dispose of the mines, but with over 70 countries still plagued by them, these maps help to take out some of the dangerous guesswork.

New Zealand's coastguard has been sending a UAV out ahead of the lifeboat in an attempt to speed up the process of finding people at sea. The drone, named Toroa, which is Maori for albatross, is also large enough to carry and drop liferafts and supplies when someone is located.



THE ONE FOR BEGINNERS

PARROT BEBOP

from US$650 / parrot.com

1

Points of view

The camera is built into the fuselage, but it has 'digital tilt control' for limited panning. It's not as good as a gimbal, but it does add up to a 180° field of view.

2

Bumper 'copter

For indoor flying the Bebop has guards that can be clipped on to stop its props coming into contact with stuff they shouldn't, such as your eyebrows, or the cat.

3

Your eyes in the sky

The Skycontroller adds an HDMI out, which can be used to pipe a drone's eye view to an Oculus Rift headset, complete with head-tracking camera control. Slick.

Back in 2010, Parrot showed us the joy of flying cameras with its AR.Drone. It was more RC toy than full-on UAV but it was enough to give anyone who flew it the bug. The Bebop is its successor, and a significant upgrade.

You still control it with a phone or tablet but GPS is now built in rather than being an optional extra, so you can get it to 'return home' and hover above where it took off (not where it was built) before landing at the prod of a touchscreen, or plot flying routes on a map using Flight Plan mode, an in-app purchase for FreeFlight 3 (US$free, Android/iOS). The camera's been boosted to 14MP, plus it'll shoot 1080p video to its 8GB of storage.

If you'd like finer control over your Bebop you can add a Skycontroller (below), which will bump the total price up to US$1140. That's a lot of cash, but it adds proper physical joysticks, a whole load of tactile buttons and an antenna the size of a small table that boosts the range to 2km. When just using a tablet or phone you are restricted by the strength of its Wi-Fi connection to the drone.

It's not all straight-faced, though. The AR.Drone's playful side lives on in the Bebop, with impressive flips executed with one touch. No wonder dogs are so into it (see Hands On, right).

HANDS ON

TOM WIGGINS
DEPUTY EDITOR

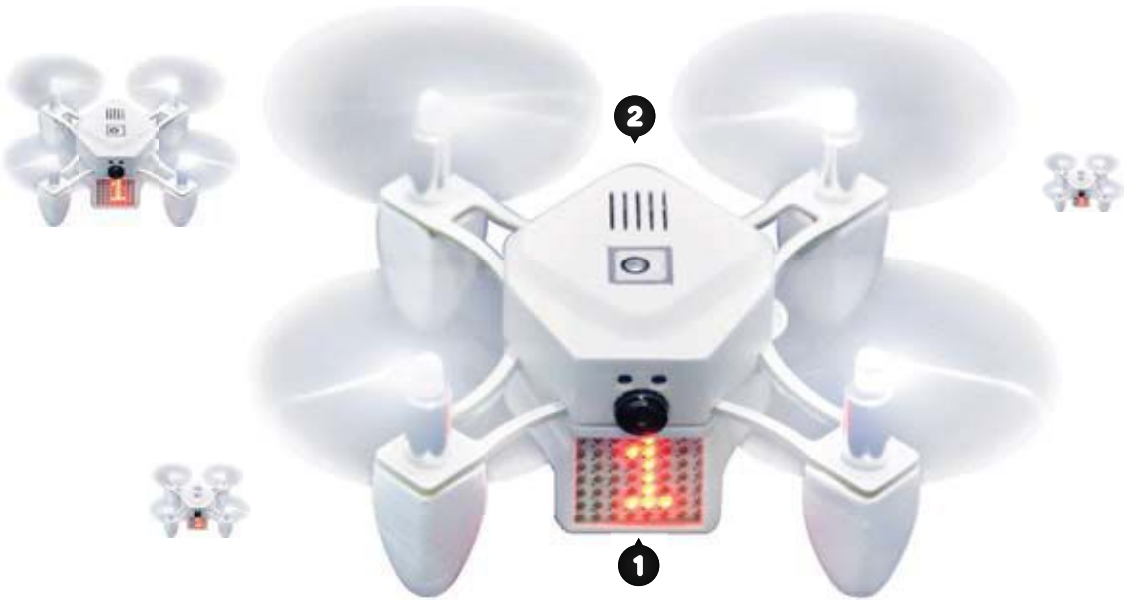
On takeoff the Bebop immediately attracted the attention of a local dog, who stood underneath it and barked incessantly for the next few minutes. While we tried to manoeuvre it away from the hound's jaws, the Bebop also attracted the attention of a local tree. Its lightweight chassis was no match for the January wind and its emergency mode, which lands the drone automatically, is of no use when its propellers are tangled in branches. At least I'd proved that dogs can look up. Forty-five minutes and the help of a passing man called Yuli later, we managed to dislodge it. I decided to continue indoors.

The live feed is a little too laggy to navigate by and the on-screen controls aren't always as accurate as you'd like, but once you get the hang of it, swooping and strafing with the Bebop is brilliant fun. It's just a pity the battery runs out so quickly.

NEED MORE PRACTICE?

GHOST BASIC
Ghost used Indiegogo to fund two drones: the DJI-alike Aerial and this simpler Basic model. Once in the air it's just a case of using the app's map view to direct it around the skies, a bit like playing your own airborne point 'n' click real-time strategy game.
US$600 / ghost-drone.com

DJI PHANTOM 2 VISION+
The Inspire 1's little brother has a friendlier price tag and less daunting appearance, but it can still produce some incredible aerial footage from its onboard camera. It even knows the areas you're not allowed to fly in to prevent coming a cropper with the coppers.
US$1370 / dji.com



1

Sky writing

This 8x8-pixel display allows you to show coloured icons in order to tell each drone apart, plus it also doubles as a countdown timer and flash for the camera.

2

Lens be friends

The Zano is meant for relative close-ups, not mapping or long shots, so it'll work best between 15 and 30 metres away from you. Say cheese!

THE TINY, SWARMING ONE

ZANO

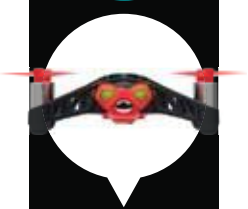
US$270 / flyzano.com

On its own, one tiny Zano drone might not be particularly intimidating, but just imagine a whole swarm of them stalking your every move. Backed by £2.3m of Kickstarter cash after asking for just £125,000, an individual Zano measures just 6.5x6.5cm, connects directly to your phone or tablet over Wi-Fi and takes to the air to film whatever gnarly pursuit you happen to be doing that day. But multiple Zanos can form a multi-angle, autonomous camera cloud, all shooting the same subject from different positions while tracking you at a speed of up to 25mph. Technically there's no maximum swarm size, although an upper limit of 255 has been set for practical reasons. Just imagine trying to outrun that angry little lot.

Each Zano has an infrared sensor to communicate with its buddies and avoid obstacles, so they should be able to dodge trees and other riders as you barrel down single-track on your mountain bike with the swarm in tow. If you'd rather take control, a Free Flight mode brings up on-screen joysticks and sliders to allow you to play pilot.

Its camera shoots 5MP stills and 1080p video, plus there are plans to add face recognition and in-app editing to allow you to add filters, audio and text. Tiny, but mighty.

SMALLER



PARROT MINIDRONE ROLLING SPIDER

Parrot's palm-sized, angry-faced MiniDrone weighs just 55g, and its engines have a nifty trick of firing up when you drop it. The snaps from its downward-facing camera won't rival the Inspire 1 for quality, but then it does cost 30 times less than DJI's pride and joy.

US$140 / parrot.com

EVEN SMALLER

REVELL CONTROL PROTO QUAD

Revell isn't 100% sure but it reckons the Proto Quad could be the world's tiniest quadcopter. Small enough to sit on the controller with plenty of room to spare, it measures less than 3cm across, can do loops – and if you're not careful you'll lose it when you yawn.

US$tba / revell.de/en

DANGER ZONE RESCUE DRONE

The Zano might snap excellent selfies, but if you were trapped in a collapsed building and your phone had been crushed by what used to be an en-suite bathroom, adding to your Instagram account should be the last thing on your mind.

Flyability's Gimball drone, which recently won the UAE Drones For Good Award, is encased in a spherical cage that protects its propellers so it can reach its goal by bumbling around hazardous environments, bouncing off obstacles like a motorised daddy-long-legs.

With an HD camera streaming video back to base, it can be used to search for survivors, inspect unsafe structures and look around areas with toxic atmospheres. Smart.

NEXT

THE DRONE OF THE FUTURE

Think shooting 4K video and auto-following is smart? That's nothing compared to the drones that are on their way...

3

IT'LL DELIVER YOUR SHOPPING

Amazon's Prime Air drone might've been mostly a PR stunt but it's not just a copy of *Life Of Pi* in the sky. A company called Matternet is already using drones for test deliveries of medical supplies and blood samples in remote areas of Haiti, Papua New Guinea, Bhutan and the Dominican Republic, with plans for its own fleet this year. The real question is: can drones deliver those 'sorry we missed you' notes without bothering to knock as well as a living, breathing postie can?
matternet.us

1

IT'LL FLY ITSELF

Automatically following a phone is all well and good but it's not quite autonomous flight, is it? AscTec's Firefly can find its way from A to B automatically, without bumping into any obstacles it encounters on the way, even if they move. It uses six Intel RealSense cameras that can detect objects in 360° around the drone and send avoidance commands to its autopilot system. San Francisco's Skydio has also created a similar system. RIP drone pilots?
asctec.de

2

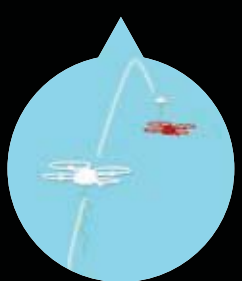
YOU'LL FLY IT FROM ANYWHERE

Unless you've managed to train an octopus to use a couple of joysticks, right now you need one pilot per drone you want to fly. If you've got a fleet of them, that soon gets complicated and potentially expensive, especially if they're not all in one place. However, DroneDeploy has developed cloud-based software to enable one person to pilot multiple drones – and because it works over 4G the pilot doesn't necessarily even have to leave the house.
dronedeploy.com

1

IT'LL PROTECT YOUR PRIVACY

If the sky ends up thick with drones there's a good chance they won't all be delivering medicine or innocently filming high-altitude home videos. If you suspect you might be a target for spies or paps, you might need a Rapere – a kind of autonomous flying guard dog. If you spot a suspect drone flying over your property, launch the Rapere and it'll scan the sky for the culprit, hover in position above it and drop a tangle line into its propellers.
rapere.io



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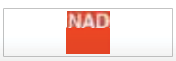

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THE GREATEST MUSIC YOU'VE NEVER HEARD

AND HOW TECH CAN HELP YOU DISCOVER THE NEXT BIG THING

YOU HAVE EVERY SONG EVER RECORDED AT YOUR FINGERTIPS, BUT YOU'RE STILL LISTENING TO THE SAME OLD ALBUMS OVER & OVER AGAIN..

IT'S TIME FOR TECHNOLOGY TO HELP YOU FIND YOUR NEW FAVOURITE BAND

SPOTIFY iTUNES TIDAL DICE

TASTEFY DEEZER PLAYLIST SOUNDCLOUD

WORDS: TOM WIGGINS ILLUSTRATIONS: WETHREECLUB

ack in 2014, a website appeared called Forgotify. It existed for one reason only: to get the four million songs on Spotify that nobody on earth had ever listened to a keen set of ears.

Forgotify works by scouring Spotify's catalogue for songs with a popularity rating of zero (about 20% of them) and picking one at random for the user to listen to. As soon as it's been heard once it is taken off Forgotify's database; but with new music being added to Spotify all the time, Forgotify's makers say the list of neglected tunes is very gradually growing longer.

This is not a problem unique to Spotify. The streaming Swedes claim that only 20% of the music on a certain download store (one that rhymes with 'Pie Tunes') has ever actually been bought, which makes Forgotify's numbers look distinctly healthy.

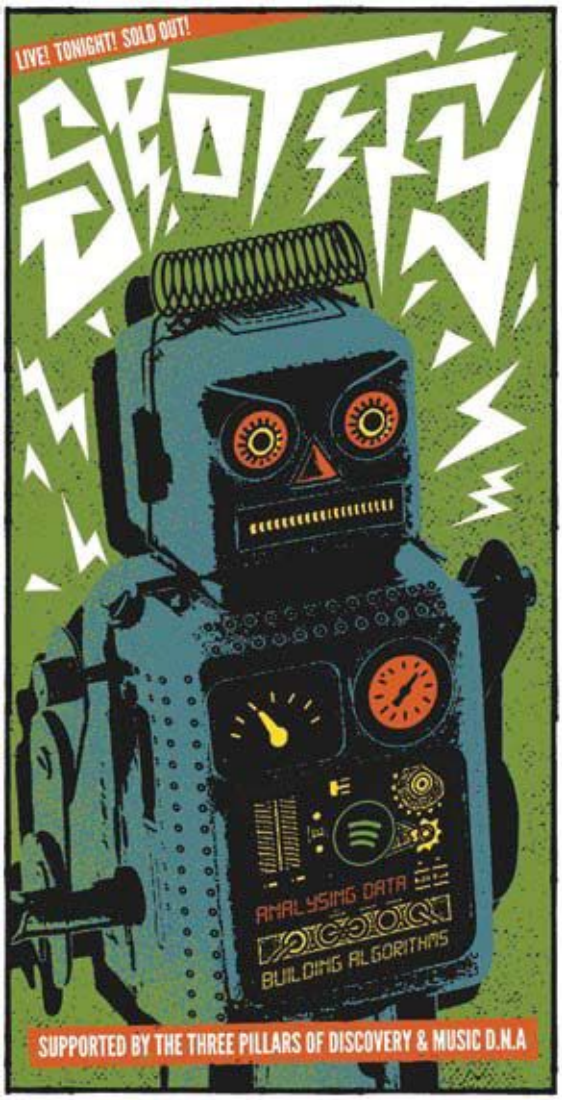
The thing is, Spotify's right. In an age where somebody can, to paraphrase Craig David, make an album in their bedroom on Monday and have it available to stream to anyone in the world by Wednesday, there's more music available to us than ever before – and on top of that, accessing it all only costs US$10 a month.

Too much choice?

This means many music fans suffer from a kind of decision fatigue. When you've got all the music in the world, it's difficult to decide what to listen to, so you fall back on the stuff you're already familiar with. Did someone say #firstworldproblems?

"I think the vast amount of music is an opportunity, not a problem," says Dave Rowntree, a solicitor, animator, pilot, politician, radio DJ and, when he gets time, drummer for Britpop legends Blur, "but streaming services are some of the worst music discovery platforms I've ever seen. As a music resource, Spotify's one of the best in the world, but look at its recommendations: if you play a Blur track it tells you that you might also like Pulp and Oasis. No! Really?"

Ouch. Dave has a point, although *Stuff* can't help thinking he's being a little harsh. Pick a lesser-known band and its algorithm does a decent job of picking out some similar artists, and it's at that level where discovery is possibly most important. It's also just a tiny part of Spotify's discovery strategy – and, arguably, its dumbest.



Can you feel the algorithm?

Miles Lennon is Spotify's product manager and from his desk in New York he explains to *Stuff* how the company combines its three pillars of discovery, of which its algorithm is just one. It's designed to analyse the 'music DNA' of a track and, combined with the taste profiles Spotify has built from every user's listening history, can be used to populate the personalised playlists that its latest version offers listeners at different times of the day.

Fire up Spotify in the early evening and the Now menu will offer you playlists created by human beings (Miles calls them musicologists) with titles like Mellow Dinner, or Farm To Table Folk & Acoustic. Apart from having names that sound like tracks from *Now That's What I Call Organic Supermarket* they do a reasonable job. Obviously they're not all bespoke; it's more a case of Spotify picking the most relevant ones for you from the thousands that have been created, and the further you delve into them the less relevant they get, but Spotify says this will improve with use.

But Dave's still not convinced: "I don't think there's any value in coming up with a magic algorithm to draw connections between music. The connections between songs are deeper, they're not mechanical." *Stuff* reckons writing off algorithms altogether is a bit naive, but again he's got a point. Take BBC 6 Music, for example, a station that can play Coati Mundi one minute and The Stone Roses the next without either feeling out of place. Can you write an algorithm that can do that? Probably not. But that's why Spotify also has a built-in social network, which includes the sidebar of shame/fame that tells other users what you're listening to.

Word of mouth

It turns out human beings are kind of important when it comes to music. They're the ones who make it, who listen to it, and they tell each other about it. Usually the ones you pay most attention to are the ones you know; the ones whose tastes you trust because you've bonded over the same songs, gigs and records. That's why Spotify creates a chart of tracks that are popular among your friends that updates every day – which is all well and good, but for lots of people there's a certain pleasure to be gained from being the first of your friends to discover a new band.

SoundCloud has a reputation as a platform for wannabes to pimp their wares, and to an extent that's true – according to *Billboard* only 20% of SoundCloud's music comes from labels – but it doesn't tell the full story. "Historically what helped attract people to SoundCloud was that many artists used it to upload stuff before it was finished to get feedback," says Sylvain Grande, SoundCloud's VP of Product, "but we're definitely not just a promo platform."

Disco-tech

While its lack of a full catalogue means it'll never be a direct competitor to Spotify *et al*, it's the stuff you won't find elsewhere that makes SoundCloud so good for discovery. Lorde found an audience for *The Love Club EP* on SoundCloud six months before Universal released it, while Drake and Kendrick Lamar have been known to debut stuff there, too.

DJ Shadow used SoundCloud to upload the mix that got him kicked off the decks at a club in Miami, and Four Tet put a collection of rarities on there called *0181*. It's the YouTube to Spotify's Netflix; it has democratised music. "We provide the tools for literally anyone to be able to share their

Blur's Dave Rowntree (second left) believes music streaming platforms don't offer much in the way of discovery

creations," says Sylvain. "We're not a record label. We're not here to push one particular artist over another. We want to create massive opportunities for as many artists as possible. It's the users and the community that decide [what's popular]. People follow artists they like, irrespective of how they discovered them."

As with Spotify, it's SoundCloud's community that's likely to lead you to the good stuff, and both platforms are pushing playlists in a big way. "We have millions of curators who aren't artists themselves, but they produce playlists that are liked, reposted and shared across SoundCloud," Sylvain says. Therefore, while the site has an algorithm recommending related artists based on genre classification and sonic analysis of each track, it's the combination of man and machine that gets the best results.

Spotify's user-generated playlists also have a big part to play in getting a band heard. Aileen Crowley works for a record label in Nashville called DigSin, and one day last year she discovered one of their bands' Spotify streams had doubled overnight thanks to their inclusion on a playlist with 50,000 followers. Sites such as Playlists.net and Topsify.com allow people to share their virtual mixtapes, and some of them have become so influential that labels are pitching songs to the playlisters in the same way they would to a radio station.

Radiohead-hunted

In fact, radio may play a bigger part in the future of streaming than many could ever have predicted. Apple's headhunting of Radio 1 DJ Zane Lowe, plus multiple producers to work alongside him, shows playlists curated by those with industry experience will be a real focus for Cupertino's new Apple Music offering.

It's a tactic also adopted by the ticketing app Dice, launched last year by *Monument Valley* maker Ustwo. At first it touted its lack of booking fees as its USP, but now the shift has focused to helping users discover the best gigs in their area, with listings available for London, Manchester, Bristol and Glasgow.

The shows are picked by a four-strong team led by music editor Jen Long, a former DJ who used to front the *BBC Introducing* show on Radio 1. While there are bigger gigs for sale on the app, such as last month's British Summer Time shows in Hyde Park and September's Bestival, the focus is on the stuff you might not be so familiar with. ▶

"I think the connections between songs are deeper than using an algorithm; they're not mechanical"

BETTER OFF FORGOTTEN?

We listened to four random tracks via Forgotify to see if they were unplayed for a reason...

A Safer Place
Gene Burnett

An inoffensive but largely forgettable acoustic strummer, *A Safer Place* comes from one of Burnett's 27 albums available on Spotify, which doesn't bode well for the whole 'throw enough poop and eventually something sticks' approach.
Verdict Bin it

Actually
The Names

Belgian post-punk is the kind of thing you'd expect only the most ardent 'tache-twiddling hipster to be into, but The Names worked closely with Martin Hannett (of Joy Division and Factory Records fame)... although clearly this is no *Love Will Tear Us Apart*.
Verdict Spin it

Farewell Words
Jiang Dawei

Jiang Dawei is a Chinese folk singer (we Googled him). Considering Spotify isn't available in China, it's not hugely surprising that *Farewell Words* has never been listened to (until now!) – and now it's been removed from Forgotify it may never be listened to again.
Verdict Bin it

Sabre Dance
Berlin Trombone Quartet

Sabre Dance is a traditional Armenian tune often used in fast-paced TV chase scenes but when played on a quartet of trombones it takes on a vaguely comedic quality, like the sound of four overweight men racing to get the last pasty in Greggs.
Verdict Spin it

HOW TO... BACK YOUR FAVOURITE NEW BAND

Music Glue

Music Glue allows any band – from banjo-bothering festival headliners Mumford & Sons to your one-man Wu-Tang Clan trumpet covers band – to sell songs, CDs (remember them?), gig tickets and merch easily. Bands can even customise their page so it looks like their own.
musicglue.com

PledgeMusic

PledgeMusic's Kickstarter-esque campaigns give fans a place to help fund a band's next record. They can offer added extras such as T-shirts, posters and gig tickets in return for varying sums of cash – it's even been used by Megadeth and The Darkness.
pledgemusic.com

Tradiio

Tradiio is a stock market where you trade in bands. The artists with the greatest investment rise to the top, and if you're an early investor the value of your investment grows as the profile of the artist does – and if you later sell your share, you'll get more back than you put in.
tradiio.com

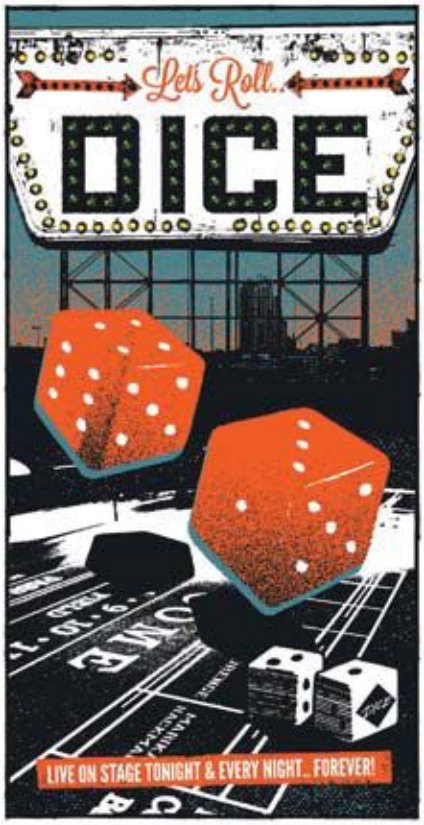
Rocketfuel

As well as individual projects, Rocketfuel gives fans the chance to support bands on a subscription basis, offering extra rewards for doing so. Give Sheffield-based jazz musician Philippa Hanna US$100 a month and she'll do an annual acoustic gig at a venue of your choice.
rocketfuelhq.com

Which gig? Roll the Dice...

Stuff meets Jen at Ustwo's hipster youth club of an office in East London. "I think that getting people out to gigs is the key to turning them into the person who doesn't just stream the album three times but actually becomes a proper lifelong fan," she says. "For me, when I see a band live is when I understand them, but when there's not much marketing behind a gig, it's generally all word of mouth. If we can be that voice and tell lots of people 'You have to check out this band' then I think that's going to be really valuable."

Dice is working to make that process as simple as possible: there's in-app Spotify integration to go alongside the descriptions, related gigs at the bottom of each listing and more to come. "We're working on making the app smarter," she explains. "The idea is to look at what people have bought tickets for and what you spend a lot of time looking at and figure out what the best gigs are for you.



There's a certain pleasure to be gained from being the first of your friends to discover a new band

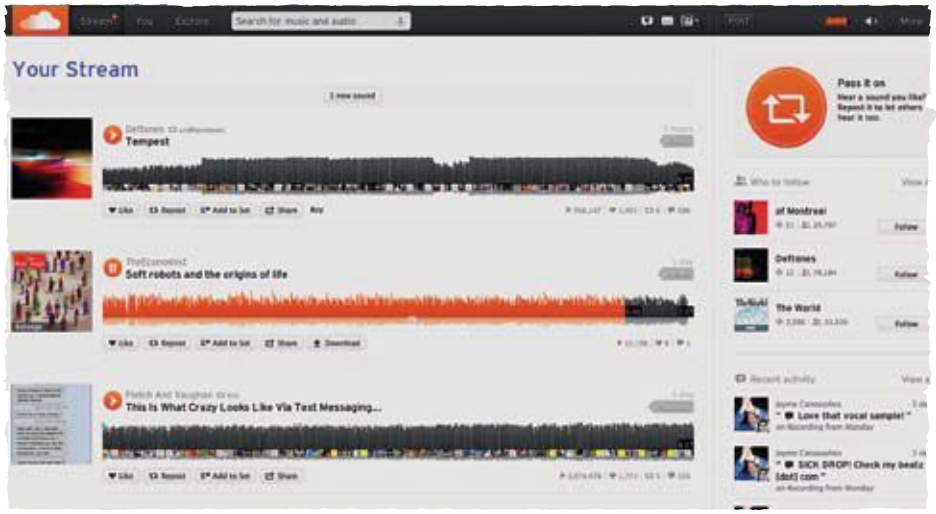
SoundCloud is a great platform for discovering new artists, as it provides tools for just about anybody to share their music – it's the YouTube to Spotify's Netflix

"We're all such huge music fans and we're all so involved in music that we already know most of the bands when they come through. We're using data, but also the human curation that you have through years of working in music; that gut feeling that something's going to be a great gig."

Kickstart me up

Tigmus arguably takes things a step further into DIY territory. As a kind of cross between Kickstarter and Airbnb, it serves two main purposes: firstly a database for bands to book gigs, and secondly a marketplace for fans to pledge to buy tickets for them. If a gig fails to attract enough fans before a certain date, the show's off and nobody loses money. If all goes well, bands get paid around 30% more, fans pay about 30% less and everybody has a lovely time. At least that's the plan.

Tigmus is the brainchild of Tom



"We're using data, but also human curation from years of working in music"

Hodgson and Oli Steadman, members of Oxford-based indie-folk band Stornoway, who noticed that while the way we listen to and pay for music has changed beyond recognition in the past 10 years, the way that gigs are arranged hasn't.

Stuff meets Tom in a Brighton pub during a rainy day at this year's Great Escape festival, where he explains: "Live music is still very web 1.0; it's a clunky, opaque world of booking agents, promoters, managers and all these people who are instrumental to great gigs, but it's difficult to break in as a young artist.

"We're trying to make it more transparent. If it's going to become more web 2.0, it needs to be much more plugged into all these streaming habits, and automate some of the processes that are currently based on people having to pick up the phone to get things done."

Dice helps music fans discover the best gigs in their area, whereas Tigmus is trying to change the way gigs are arranged, with fans pledging to attend them

The great gig in the Skynet

Like Jen Long at Dice, Tom reckons the key to turning what plays into what pays is to convince people to go to gigs and make it as easy as possible for them to get there. With around 300 venues signed up and a couple of hundred artists, plus 100 Tigmus-powered gigs under its belt, Tom's optimistic. "The more venues that sign up, the more artists it'll attract, and vice versa," he says. "Once we get some of that traffic coming through, we can do some really cool stuff with the data."

So, can an algorithm really find you a new favourite band? Not without human help, but then that's probably no bad thing. After all, if you take the whole thing to its logical conclusion, we'd have to hand over music-making to the machines as well, and pretty soon we'd end up living on a planet that resembled *Terminator: The Musical.*

Although on second thought, that could be pretty entertaining.

TIDAL: A HIGH-RES WINNER?

If audiophile-in-chief Neil Young is to be believed, there's a lot of music within the music you're listening to that you've never heard. But will high-res audio ever be more than a niche concern? Jay-Z and his band of Tidal-supporting audio avengers are certainly on Neil's side, although you get the feeling they're more bothered about the cash than the sound quality.

"Just because there's an opportunity to have better-sounding music doesn't mean people will grab it," says Blur's Dave Rowntree, "especially if they're going to have to spend more money. If there's some must-have hardware, that might do it, but just the increase in quality probably isn't enough." High-res audio on the next iPhone, anyone?

PROJECT-A-THON

Canon Xeed WUX500

US$4000 | canon.com

Sporting native WUXGA resolution at Full HD, this Wi-Fi enable projector is bursting with brightness thanks to its 5000 lumens constant brightness and a 2000:1 contrast ratio. Great for professional photographers who want to bring out the best in their work on a scale more massive than a puny photo album.

TECH SPECS

Projection System LCOS
Resolution 1920x1200
Brightness 5000lm
Contrast Ratio 2000:1
Image Size 40in to 300in
Connections DVI-I, HDMI, 2xRJ-45, 2x Stereo Audio, USB
Dimensions 337x134x370mm, 5.9kg

JVC DLA-X700R

US$5700 | jvc.com

With deep, inky blacks and unbeatable contrast, home cinema aficionados will be enamoured with this hefty projector. Even though it's only a 1080p model, it uses proprietary tech to magically deliver a pixel dense 4K image, giving it a one up on its rivals.

TECH SPECS

Projection System e-shift3
Resolution up to 3840x2160
Brightness 1300lm
Contrast Ratio 1.2m:1
Image Size 60in to 200in
Connections 3xHDMI, RJ-45
Dimensions 455x179x472mm, 15kg

Who needs a telly when you can binge-watch your favourite shows on your own home cinema with these awesome projectors

Hitachi TW3003

US$1720 | abcom.ae

This ultra short-throw projector means you don't need a huge living room in order to get a massive screen on your wall. It outputs at 1280x800 res meaning it can display 720p content natively with nary any letterboxing.

TECH SPECS

Projection System PSI-TFT
Resolution 1280x800
Brightness 3300lm
Contrast Ratio 5000:1
Image Size 60in to 100in
Connections 2xHDMI, 3xMini D-sub, RCA, 2xStereo Audio, 3xUSB
Dimensions 377x136x360mm, 4.5kg

Sony VPL-GTZ1

US$call | abcom.ae

The pimp daddy of the ultra-short-throw projector game with a price to match. Place it only 7in from a wall and you'll get gorgeous 4K images at a cinema-rivaling 147in. It'll even throw up a respectable 66in if you stick it plush against said wall. Impressive.

TECH SPECS

Projection System SXRD
Resolution 4096x2160
Brightness 2000lm
Contrast Ratio ∞:1
Image Size 66in to 147in
Connections 4xHDMI, RJ-45, USB
Dimensions 1250x265x535mm, 55kg

BenQ MX666+

US$820 | abcom.ae

BenQ have the business professional in mind with this one. Built-in WI-FI and NFC means you can quickly throw up presentations and demos with ease and a host of proprietary apps will make you a show and tell boss. All in crackling Full HD, no less.

TECH SPECS

Projection System DLP
Resolution 1024x7680
Brightness 350AL
Contrast Ratio 13000:1
Image Size 37.5in to 300in
Connections 3xD-sub, HDMI, RCA, S-Video, 3xStereo Audio, RJ-45, 2xUSB
Dimensions 311x104x244mm, 2.65kg

Lenovo Yoga Tablet 2 Pro

US$460 | lenovo.com

It's one of Lenovo's signature twisty tablets, only this bad boy has a projector nestled within it, allowing you to project up to a 50in screen on any surface. We also love the built-in JBL front-facing speakers and subwoofer for the full cinema effect.

Philips PicoPix PPX 2614

US$570 | philips.com

This ultra-portable LED projector is perfect if you want to throw up big images directly from your smartphone. It's Wi-Fi enabled, has an impressive battery life and pumps out vivid (140 lumens) images, all for an impressively reasonable price.

TECH SPECS

Projection System DLP
Resolution 854x480
Brightness 140lm
Contrast Ratio 1000:1
Image Size 12in to 120in
Connections miniHDMI, VGA, Component YPbPr, RCA
Dimensions 190x190x80mm, 0.270kg

Epson EH-TW6600

US$2200 | epson.com

This is the ideal projector for home cinema fans looking for a giant picture on a modest budget. It delivers sharp, vibrant Full HD images comparable with models costing twice as much. At 2,500 lumens it's also plenty bright enough for gamers. Bonus.

TECH SPECS

Projection System 3LCD
Resolution 1920x1080
Brightness 2500lm
Contrast Ratio 70,000:1
Image Size 30in to 300in
Connections 4xHDMI, Component, RCA, Stereo Audio
Dimensions 410x157x304mm, 6.7kg

App:roved

FOR MEGALO-MANIACS

Earth Primer

This interactive science book lets you create volcanoes with your fingers. If that doesn't interest you, you're probably dead inside. But if you're already on the App Store you'll enjoy this title, which blasts through various facets of our planet before leaving you in the Sandbox: this final section is a free-form mini-*Populous*, where you build mountains, bake the ground, raise sea levels and blow gales. Perfect for kids of all ages (particularly those in their 20s, 30s and beyond).

Stuff says ★★★★★
US$9.99 / iPad

FOR HAPPY SNAPPERS

Snapseed

The Google-owned image editor returns with a major overhaul, boasting Material Design that looks smart on Android if a bit weird on iOS. Snapseed retains its usability, though, and it's easy to add filters and make basic adjustments to photos. This update greatly increases the app's power through non-destructive effects — at any point you can delve into your edit 'stack' and tweak or delete a step. Given the absence of a price tag, there's no reason not to give it a try.

Stuff says ★★★★★
US$free / Android, iOS

FOR CONSOLE CRAVERS

Implosion: Never Lose Hope

Implosion developer Rayark aims to bring AAA console gaming to mobile. It's a lofty goal, but this is certainly a fab-looking slice-and-dice action title with seriously impressive production values. The audio and controls are great and the visuals shine on smaller displays (although they're a touch blurry on iPad). It's tough, premium and lasts well over a dozen hours: it won't replace your PlayStation but the gap is closing.

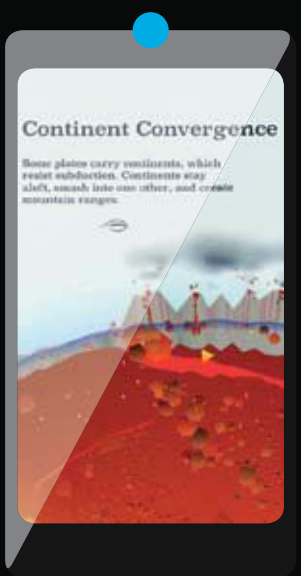
Stuff says ★★★★☆
US$9.99 / iOS, Android

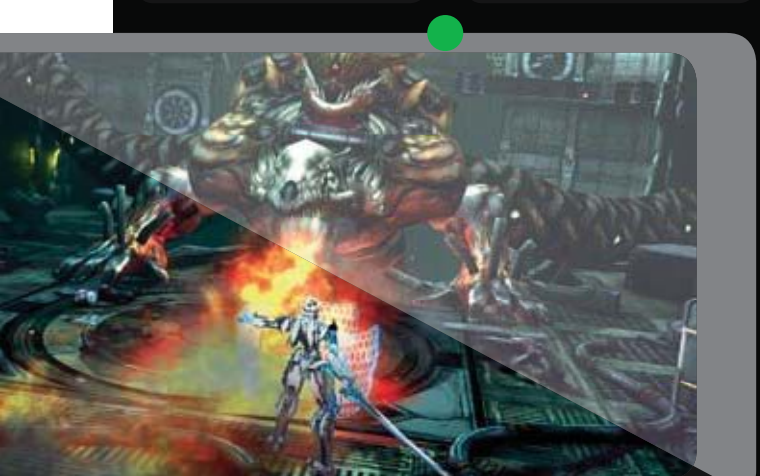
FOR RAIN-O-PHOBES

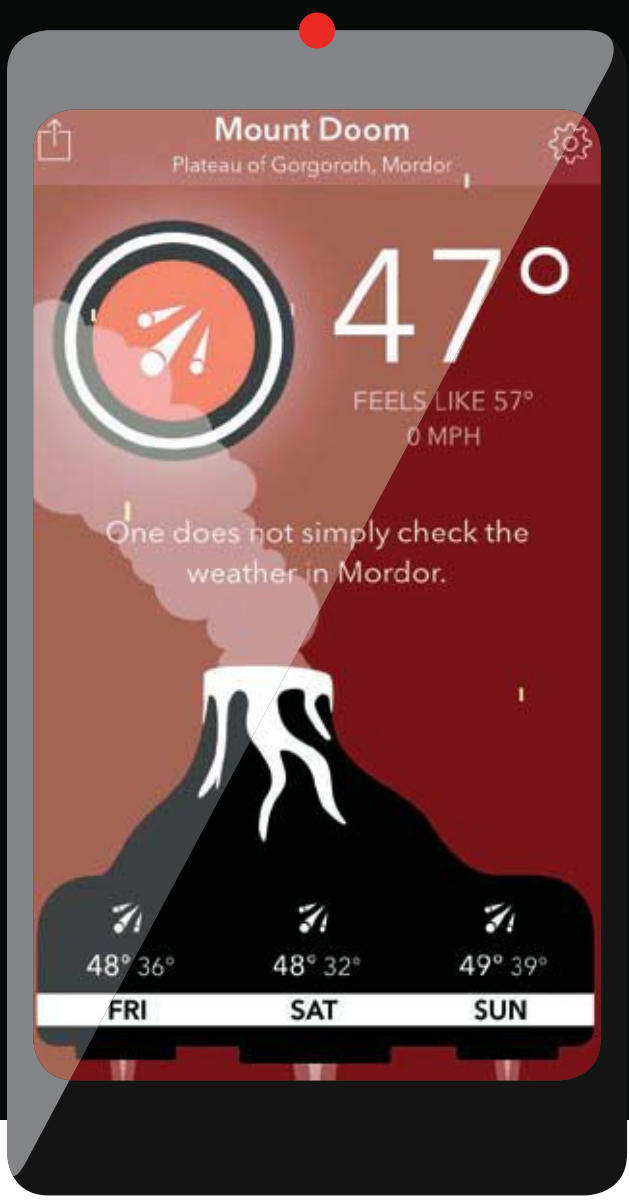
Carrot Weather

On iOS, there's Apple's basic weather app, the data-crazed Weather Pro, and dozens of apps trying to win someone designer of the year. Carrot cuts through any po-faced nonsense and clutter by having forecasts delivered by a cranky AI hell-bent on the end of humanity. Data from Dark Sky ensures the forecasts are broadly accurate (plus UK and USA users get an hour's rain prediction), but it's fun to poke around, get threatened, and discover secret locations.

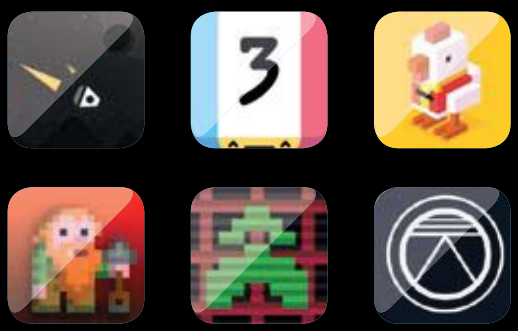
Stuff says ★★★★☆
US$3.99 / iOS







Mini meme



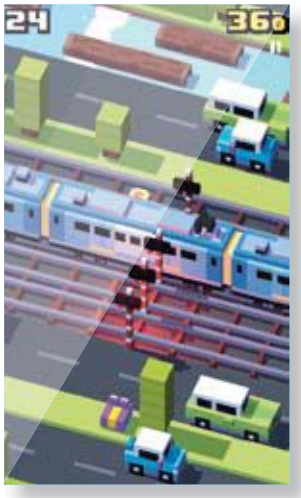
CLASSIC ONE-THUMB GAMES

Six first-rate titles for those times when your gaming brain can only cope with input from a single digit

Alone...

Channelling the spirit of leapy platformer *Canabalt* and a hint of the 'Flappy' titles, this is an exhilarating one-thumb survival game on fast-forward. You hurtle through the void at breakneck speed, a thumb nudging your craft up or down as rock faces, comets and debris blaze past. Your inevitable demise is only ever moments away.

Stuff says ★★★★★
US$1.99 / iOS, Android



Crossy Road

Revamp *Frogger* in chunky isometric visuals, add some trains, make the poor frog's journey never-ending and you've got *Crossy Road*. Add a massive cast of characters (unlockable via an in-game one-armed bandit or, if you're impatient, IAP) and lashings of humour, and you've a well-deserved viral one-thumb classic.

Stuff says ★★★★★
US$free / iOS, Android

Doug Dug

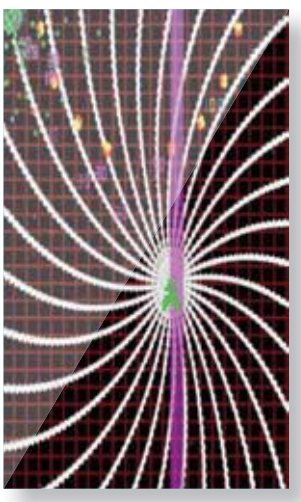
Greedy dwarf Doug wants all the bling, and so he must dig. But deep underground is full of deadly, hungry critters. The biggest enemy, though, is perhaps the earth itself, which unsportingly tends to cave in and crush you, in this entertaining game that has more than just a whiff of *Mr Driller*, *Spelunky* and *Dig Dug*.

Stuff says ★★★★★
$1.99 / iOS; $0.99 / Android

Threes!

This calls itself a tiny puzzle game, yet on worming into your brain, its demands on your time will be anything but tiny. You swipe to match numbered cards, manipulating the entire board to create chains that leave spaces open for newcomers. It's 2048 times better than pretender *2048*, and among mobile's best puzzlers.

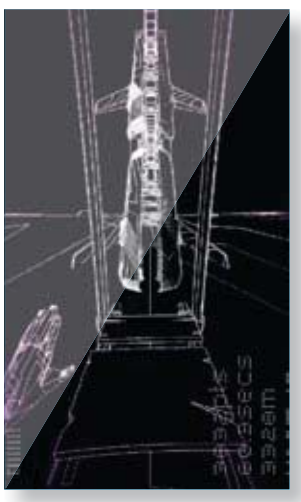
Stuff says ★★★★★
$1.99 / iOS; $1.50 / Android



Gridrunner

At a glance, *Gridrunner* oozes '80s arcade charm, with lurid graphics and single-screen gameplay. But this is a thoroughly modern blaster — the best on mobile — cramming bullet-hell into a shoebox. A single digit directs your tiny auto-shooting vessel as it attempts to avoid endless foes intent on your destruction.

Stuff says ★★★★★
$0.99 / iOS; $free / Android



Fotonica

Canabalt in 3D merged with *Rez*-like abstract visuals: *Fotonica* is greater than the sum of its parts. Hold to run and release to leap into the air, working your way along complex pathways constructed before your very eyes. The electrifying dream-like atmosphere and superb music make the game experience all the more potent.

Stuff says ★★★★★
US$2.99 / iOS, Android

Breville the Oracle

Price US$2700 / breville.ae

What's the story?
This is the world's first automatic manual espresso machine that (with the right amount of practice) will net you a far superior cup of java than your local spotty-faced barista. But whilst its price tag puts it out of reach of all but the most well-heeled caffeine fiends, this is clearly aimed at those seeking a major step up.

Is it any good?
It's a lovely-looking all-metal thing with clever little touches: a dedicated espresso boiler that extracts your shot to +/- 1 degree of your desired temperature, and the 2.5L water tank has an integrated, changeable filter.

It also features a built-in grinder, allowing you to make coffee with beans you've smashed into dust just seconds earlier. Freshness means a lot in the coffee world, so this is a big deal, as is the low-pressure pre-infusion of the grounds before the water is forced through them at a higher 15-bar pressure.

And it bears out in the coffee the machine produces: cups turn out gloriously smooth with barely a hint of bitterness. The milk-steaming wand is excellent too, producing light, airy foam and can be used to simultaneously texture milk whilst you extract esspresso for instant readiness.

Tech
Water tank size 2.5L • **Pressure** 15 bar • **Milk foaming arm** Yes • **Power** 2400W • **Dimensions** 375x370x460mm, 16.6kg

Stuff says ★★★★★
Packed with features, this is a fantastic way to make cafe-beating coffees

4 OF THE BEST

Coffee machines

Panasonic NC-ZA1

Price US$640 / panasonic.com

What's the story?
Like the Breville above, the NC-ZA1 is a 'bean to cup' espresso machine: it takes whole beans, grinds them and pushes through hot water to produce a cup of coffee. That's where the similarities end, however, because the NC-ZA1 makes almost the entire process automated and controllable via a touchscreen.

Is it any good?
The water tank slides out of the front of the machine, which means you don't ever need to move it away from the wall. Every time you switch the machine on, it flushes water through its pipes. It's a bit annoying, but it has its benefits: the NC-ZA1 makes a delicious cup of coffee.

Our first espresso out of the machine was a disappointment: watery and bland. But the second was far better: rich, smooth and right up there with more expensive machines.

The touchscreen is a little basic (you have to give it a good press to have your touches register) but fulfils its role just fine. You can tweak the amount of coffee, water and milk plus the temperature before a drink is made, and save up to four of these combinations on the machine as personal favourites.

Tech
Water tank size 1.4L • **Pressure** 15 bar • **Milk foaming arm** Yes • **Power** 1550W • **Dimensions** 410x335x195mm, 10.3kg

Stuff says ★★★★★
Coffee from the future! This robotic barista is already great, and with a few tweaks Panasonic could hit auto-java perfection

DeLonghi Nescafe Dolce Gusto Jovia

Price US$110 / delonghi.com

What's the story?

A slim and sleek machine that attempts to place itself in the hinterland between no-fuss convenience and serious coffee.

It's affordable and incredibly simple to set up and use. Simply fill the water tank with cold H_2O, pop in your chosen coffee pod, stick a cup under the spout and hit the power button.

Is it any good?

There's very little in the way of cleaning or maintenance to be done, bar an occasional emptying of the drip tray, a rinse of the removable pod holder and, of course, the refilling of the water tank. This isn't huge, so you'll need to fill it fairly frequently.

There's no steam wand for heating and foaming milk, but the Dolce Gusto system has its own way of doing that: drinks such as cappuccinos and lattes are made with two pods: one coffee pod and one special milk pod. Drinking milk expelled from a pod isn't as appetising as fresh cow juice, but it's less effort and less mess.

So what's the coffee like? It's tasty, especially if you stick with the simpler, non-milk varieties. You have very little control over how the coffee is made, but this machine is so convenient and easy to live with that it charms you regardless.

Tech

Water tank size 0.8L • **Pressure** 15 bar • **Milk foaming arm** No • **Power** 1500W • **Dimensions** 228x171x325mm, 2.5kg

Stuff says ★★★★☆

The Jovia won't appeal to hardcore sippers but its simplicity is hugely appealing: affordable and amiable

Time to chuck that jar of muddy granulated instant and make a proper cup of joe, using one of these beauties

Morphy Richards Accents Espresso

Price US$100 / morphyrichards.co.uk

What's the story?

Bigger, bulkier and more robust than the Jovia, this Morphy Richards machine is part of the company's Accents range of kitchen appliances, and very handsome it is too.

It's a 'proper' machine that can make both single and double shot espressos, and it'll accept both ground coffee and ESE pods.

Is it any good?

Having supped both espressos and lattes made by the machine, we're reasonably impressed. The milk foamer isn't outstandingly good but the 15-bar pressure makes for tasty, smooth coffee with a healthy-looking *crema* on the surface.

It requires a touch more cleaning and faffing around than the Jovia – you'll need to wipe off the foamer arm after every use – but operation is simple, with only three buttons (coffee, power and milk steamer controls) and one dial (for the foamer) to worry about.

The price is incredibly low for a product of this standard (and represents a huge reduction from the Accents Espresso's original price of US$200), making this the ideal affordable entry point to the world of decent homemade espresso-based coffee.

Tech

Water tank size 1.25L • **Pressure** 15 bar • **Milk foaming arm** Yes • **Power** 1000W • **Dimensions** 288x220x315mm, 3.6kg

Stuff says ★★★★☆

A sturdy, elegant and wallet-friendly machine: a great way to step up from instant or cafetiere-made coffee

Wii U / nintendo.com

Splatoon

Nintendo's new franchise isn't a total misfire, but sometimes this paint-flinging online shooter can be too messy (and not in a good way)

The Wii U's top games are almost entirely big franchise affairs, but *Splatoon* is the rare anomaly: a Nintendo game that doesn't star Mario and isn't peppered with fan service. It's a totally new game – one that takes a familiar, popular genre and gives it a strong, properly Nintendo-esque twist. But the appeal of this multiplayer paint-blaster chips away much faster than expected.

Splatoon strips out the violence and machismo from the usual third-person shooters to leave a good-natured experience: the messiest game of paintball you've ever seen. You're a cartoonish squid creature, and in the eight-player online skirmishes, your job is to cover every bit of the ground with your team's colour.

You can still splatter enemies by dousing them with your hue, but deaths don't add to a team tally. And there's an added incentive to plaster the floors with your paint: you can submerse your character within a puddle, letting you sneak around while also refilling your blaster. Stealth adds a strategic element, as do the varying weapon selections (the giant paint roller is fantastic).

Four-on-four online showdowns are fast and fluid, whether you're coating the whole map (Turf War) or a certain segment (Splat Zones), but Nintendo fumbled the structure a bit. Only two of the six maps are playable at any given time in each mode, you can't exit lobbies after entering, and loadout changes aren't available between matches. Player progression is also slow, and such frustrations detract from the otherwise enjoyable action.

Meanwhile, the single-player challenge stages feel like scraps rather than a rich, collective campaign. It seems like padding to make this a full-priced disc game, but *Splatoon* would've been better served as a cheap or free-to-play online-only experience. Great fun moments are found online, but this is a thin package overall.

Andrew Hayward

Splat Zone area battles are almost akin to Domination in *Call Of Duty*

Action is fast and fluid, and the bite-sized matches keep things frenzied

STUFF SAYS *Splatoon* is original and great fun, but ultimately it lacks sticking power ★★★☆☆

Skinny Syndrome

A slim Android sensation with a laptop-style keyboard

from US$700 / sony-mea.com

■ Thin and light. All of Sony's recent tablets have been about getting as thing and light as possible. At times, you do start to wonder whether all the effort is worth it. However, at only 7.6mm thick and 389g it starts to make sense with the Sony Xperia z4 Tablet. The idea is simple: people have fallen out of love with 10in Android tablets, and the Z4 offers another reason for them to exist.

■ The tablet part isn't all that different from last year's Z3 offering. The top screen is glass and there are tiny steel caps on the corners. It feels pretty good: dense and taut as if it has spent a good long while down the gadget gym. But it does flex a tiny bit if you bend it diagonally. It's one of the more modern designs you'll see in a 10in tablet – there's enough bezel to rest your fingers on but not so much that it looks like a digital photo frame.

■ Despite not having a flap over the charge socket, the Sony Xperia Z4 Tablet can be dunked in water for up to 30 minutes and it'll be fine. No, it won't implode at 30 mins 10 seconds, that's just the standard it's certified to. All it needs for this is a flap over the microSD slot, and SIM slot if you pick the mobile internet edition. That's right, the Z4 comes in 4G and Wi-Fi only models.

■ The bundled keyboard case is a welcome addition. It's nothing flash, but is the perfect way to move the Z4 Tablet about, especially as it keeps the screen safe. Even the typing experience is reasonable, with fairly crisp, well-spaced keys trumping most third-party tablet keyboards out there. It feels an awful lot like a full-blown hybrid laptop tablet, even if Android isn't really designed to be used with a mouse.

■ That camera spec is pretty low-end by today's standards (8.1MP rear and 5MP on the front), but the Sony Xperia Z4 Tablet does at least produce fairly vivid-looking photos most of the time.It's only when you zoom in a bit further that you notice they look kinda processed and lack detail compared with a good phone. But looking at anything on its gorgeous 10.1in 2560x1600 screen is a bonafide revelation thanks to a colour popping IPS LCD.

Tech specs

Screen 10.1in IPS LCD 2560x1600 • **CPU** Snapdragon 810 2GHz • **RAM** 3GB • **Storage** 32GB w microSD • **Camera** 5MP front, 8.1MP rear • **Dimensions** 167x254x6.1mm, 0.39kg (tablet only)

STUFF SAYS Sony reinvented its top tablet, adding a serious side without turning down the fun ★★★★★

Sony Xperia Z4 Tablet Verdict

Andrew Williams @wwwdotandrew

Just as it looked like 10in tablets were on the way out, Sony comes up with another stunner. The tablet on its own isn't a massive departure from what we got last year, but by making a keyboard module a big part of the package, we get a whole new side to the Sony Xperia Z4 Tablet. Now it's handy for work as well as play.

Media hoard

Gunmen old and new, spacecraft real and imaginary, and music soft and crunchy make up this month's crop of aesthetic offerings

WATCH

Slow West_cinema

In the directorial debut of John Maclean (he of Beta Band fame), Kodi Smit-McPhee plays Jay, a well-to-do Scottish teenager with an accent that wanders almost as much as his feet. *Slow West* joins him at the start of a trek across America to find the girl he loves, who has been forced to flee with her father for reasons that are revealed through flashback. Jay is soon joined by bounty hunter Silas (Michael Fassbender) who, unbeknown to the boy, is also after the pair.

What follows is essentially a road movie from a time before roads, taking in some of the most breathtaking scenery New Zealand has to offer in its role as the American outback. But while almost every background could be an oil painting, this is an ugly world in which second-hand coats come with bullet holes and bloodstains.

On the way the unlikely duo's blossoming bond is tested by, among others, a sniper disguised as a priest and the fur-coat-wearing, absinthe-drinking Payne (Ben Mendelsohn). At times *Slow West* has a fairytale feel to it, complete with thick forests and lone cottages that Payne's pack of snarling vigilantes threatens to blow down. These Coen-style quirks make *Slow West* memorable, and make up for its only half-explored ideas around the treatment of Native Americans.

Tom Wiggins

STUFF SAYS ★★★★☆

American Sniper
_Blu-ray, DVD, VOD

It's more patriotic than an overweight bald eagle driving a Mustang with a stars'n'stripes paint job but, some dubious and overly simplified politics aside, *American Sniper* is a gripping tale of the US military's deadliest marksman. All the same, it's difficult to shake the feeling that there's a more interesting story to be told.

Tom Wiggins

STUFF SAYS ★★★★☆

Blackhat
_Blu-ray, DVD, VOD

This stylish tale of hackers hacking hackers seems a tad simplistic at times but it dodges most cybercrime clichés. Chris Hemsworth is a binary-code Bourne, equally happy armed with a gun as a keyboard – and it's his trigger finger that becomes his key asset. Given the potentially dry subject matter, that's probably for the best.

Tom Wiggins

STUFF SAYS ★★★☆☆

LISTEN

My Love Is Cool_Wolf Alice

When grunge ruled the world in the early '90s the four members of Wolf Alice weren't even born. Listening to their early EPs you'd never have guessed it, but if that wave of Seattle-tinged hype brings you to *My Love Is Cool*, you won't find the tribute record you might expect.

That's not to say those influences aren't clear: *You're A Germ* has the shout-along charm of textbook Hole, while *Giant Peach* is Sleater-Kinney gone krautrock, but it's a record that's far poppier and more varied than that. There's an Ellis-Bextor Englishness to Ellie Rowsell's vocals, which go from breathy whisper to riot-grrrl scrawl. Just when you think you've got Wolf Alice sussed, they twist off in another direction.

Tom Wiggins

STUFF SAYS ★★★★☆

A Dream Outside_Gengahr

This is quite nice. It's bright and crunchy melodic indie rock with some interesting dynamics, and quavery falsetto vocals that sound like a nervous pixie asking for a pay rise. At times it recalls MGMT, but with twinkly guitars instead of lush synths... and, aside from a couple of duffers near the end, much more imaginative songcraft.

Richard Purvis

STUFF SAYS ★★★★☆

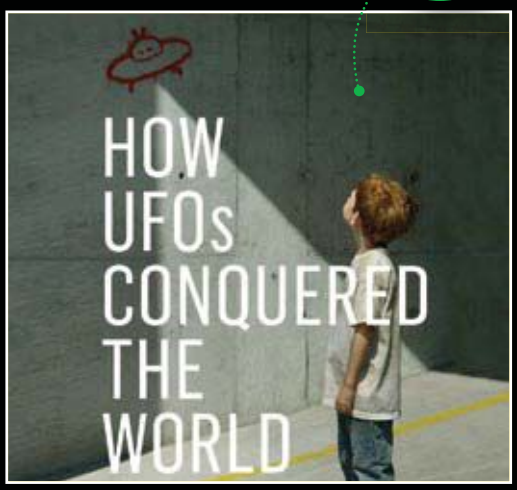
Get To Heaven_Everything Everything

Everything Everything continue to impress with their own brand of electro-flecked indie rock by packing laptop beats, frantic drumming and the unmistakable falsetto of Jonathan Higgs. You'll find yourself mumbling along to *Spring/Sun/Winter/Dread* but be careful trying to sing along with *To The Blade*.

Kyle Pittman

STUFF SAYS ★★★★☆

READ



How UFOs Conquered The World_David Clarke

Smartphone cameras haven't exactly sparked an explosion of convincing UFO videos. Could it be that flying saucers and their ilk are a 20th-century human syndrome that reflected the pop culture of their time?

That's the argument of this fascinating book by Dr Clarke, a childhood believer turned UFO journalist. Critical without belittling its many eyewitnesses, it revisits major UFO events to show how films like *Close Encounters Of The Third Kind* and the Cold War primed Western minds for the idea of being watched over by shy aliens.

It's a fine read – even for Mulder types who still want to believe.

Mark Wilson

STUFF SAYS ★★★★★

Leaving Orbit _Margaret Lazarus Dean

Dean is a NASA nerd, but in the most charming way. Her stories and enthusiasm are what give this ode to the end of the Space Shuttle programme its endearing personality. This is a history lesson with heart and wide-eyed wonder, and any space fan will appreciate its optimism for the future.

Tom Parsons

STUFF SAYS ★★★★☆

Eyes Wide Open! 100 Years Of Leica Photography _Hans-Michael Koetzle

Few brands are as iconic as Leica. This coffee-table book claims it invented fashion photography, the avant-garde, the world as we know it... Fortunately, it's also packed with great photos which say more than the words ever could.

Marc McLaren

STUFF SAYS ★★★☆☆

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Stuff

PROJECTS

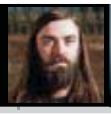
MAKE. DO. UPGRADE.

p56
BETA YOURSELF: SOAPBOX CARS
It's exactly like F1, but with gravity and a gentle slope instead of engines

p58
PLAYLIST: T-SHIRT SITES
Browse our favourite online stores to get teed up for summer

p59
5-MINUTE HACKS: IF NOTHING ELSE...
Beat your screen obsession, and other life fixes

BETA YOUR-SELF



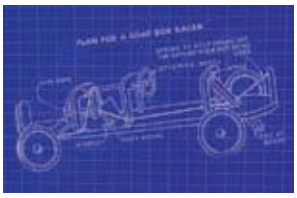
SOAPBOX CARS

Shed projects don't get much more exciting than building a gravity racer. But where to start? Red Bull soapbox designer Philip Ryan maps out your road to glory

THE BASICS

■ **Have a digital brainstorm.** Sketchup (sketchup.com) is a free and very useful tool for visualising your soapbox design. For inspiration, check out the All American Soapbox Derby (aasbd.org) and Gravity Racing (gravityracing.org.uk).

■ **Go aero.** Even at relatively low speeds, aerodynamics are important. Make sure your design interacts as little as possible with airflow. If you don't interact with the air, it isn't going to know you're there. This will reduce drag and increase your speed.



■ **Budget wisely.** The costs of building a basic soapbox car can quickly add up. We saved with bicycle wheels and a go-kart steering wheel, but we spent $250 buying raw materials and getting the body panels cut out.

■ **Start with the wheels.** The general consensus is that 20in wheels offer the best balance of speed and stability for gravity racers. Also consider how you want it to look, and what you can afford.

■ **Wood or metal?** Beginners should choose wood as their main material. The basic tools are in most people's garage, and sheet timber is pretty cheap. All-metal cars offer greater strength and longevity, but demand more specialist skills.

■ **Keep it real.** eBay and Dubizzle are useful sources for parts, but it's worth spending some time perusing second-hand bike shops and skips. We got the wheels for our prototype from a kid's bike that had been thrown out.

[Photography RGB Digital]

NEXT STEPS

■ **Get onside.** We started with the side panels and built the chassis to suit. If you don't have access to a CNC machine, an electric jigsaw will do. Set it to a slow speed and go steady.

■ **Use bike brakes.** Home-made pads that rub against your wheels might be cheaper, but buying bike brakes is easier.

■ **Weigh up your course.** Flatter, straighter courses tend to favour heavier builds, while ones with corners and chicanes are better suited to lighter, more nimble designs.

THE BUILD

■ **Tool up.** A circular saw is good for speed and a mitre saw accurately cuts across the grain. We also used an angle grinder, impact driver and orbital sander.

■ **Avoid rope steering.** It's unstable, so adopt a go-kart's 'pitman arm' steering. You'll find a strong axle, steering column, track rods and hubs on eBay.

■ **Customise the cockpit.** Before bolting in your seat, get the driver to move it around until they're comfortable. Tape in some padding too – they'll thank you when landing a jump.

FINISHING TOUCHES

■ **Tweak the steering.** If it's too twitchy, try shortening the length between your steering column and the track rods. Test and re-test until you're happy.

■ **Plan your paint job.** Soak up inspiration from magazines such as *Hot Rod* (hotrod.com) or Red Bull's soapbox gallery (redbullsoapboxrace.com).

■ **Prepare to fail.** Your driver should wear a motorbike helmet and gloves. You could also build a rollcage into your design. This should include lots of triangles to boost its strength.

DRIVING TIPS

■ **Brake wisely.** Going fast is easy; not losing speed is a real skill. Practise the racing line, going slower into corners and only braking when necessary.

■ **Don't over-steer.** Lots of corrections will slow you down. If you're heading for the barrier, try to make one adjustment and don't overcorrect.

■ **Practise jumps.** If your race includes a jump, make sure your car won't collapse in on itself. If it's strong enough, get some big air for the cameras – you only get one chance.

LEVEL UP WITH...

THE SHOW

SPEED WITH GUY MARTIN: GRAVITY RACER

channel4.com

"If you're not crashing, you're not trying hard enough" is speed-hound Guy's motto as he teams up with Sheffield Hallam University to have a crack at the world gravity racing speed record of 84mph. It's a four-month journey through street luges, a crash course in mechanical engineering and many bales of hay.

THE WEBSITE

ENGINEERING SPORT

engineeringsport.co.uk

This blog from Sheffield Hallam University's Centre for Sports Engineering contains detailed breakdowns of how its engineers designed Guy Martin's gravity racer for the world-record attempt (see above). And it's worth sticking around for enlightening posts on the aerodynamic tech behind sports like speed skating, skiing and cycling.

THE RACE

RED BULL SOAPBOX RACE

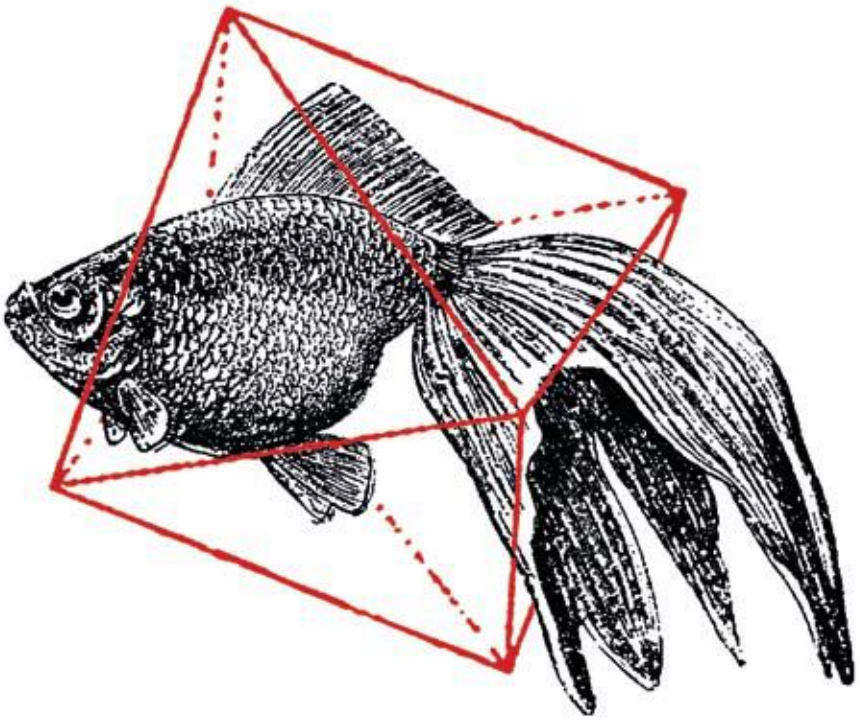
redbullsoapboxrace.com

It's too late to enter your own soapbox into this international race at London's Alexandra Palace on 12 July, but that doesn't mean you can't buy a ticket and soak up some inspiration for your next soapbox masterpiece. Previous designs have included a burrito-shaped racer, a giant baby carriage and a massive corn on the cob.

PLAYLIST

T-SHIRT SITES

Why submit to the nightmare of going shopping in the physical world when all the smartest, most original T-shirts are to be found in digispace?



Artokingo
Featuring some of the best artist-designed T-shirts on the net, Artokingo differs from crowd-powered stores like Threadless by only listing its favourite designs. These tend to be animal-themed, such as the lovely 'Fish in Geometrics' design by Florent Bodart to your right.
artokingo.co.uk

Photo.Clothing
We expect our photos to be printed all the way to the edge, so why not our T-shirts too? This place delivers striking photographic prints that cover entire shirts, sleeves included. Got to be better than a 'vintage' logo advertising a Californian crab shack that doesn't even exist, hasn't it?
photo.clothing

North East
For a touch of modernist Japanese minimalism, North East collaborates with international designers to offer bold prints with a geometric edge. All on plain white or plain black fabric, they're perfect for making a statement without actually having to say anything.
northeast.jp

Threadless
A long-standing option for smart T-shirts, Threadless takes submissions from illustrators across the world and prints the ones that get the most upvotes. Because it's in the US you'll have to pay shipping, so it's worth buying in bulk but there are so many awesome designs it's worth it.
threadless.com

Worn Free
For maximum rock'n'roll cred, these licensed shirts pay homage to well-loved bands and musicians from Miles Davis to Debbie Harry. There are also designs worn by rock idols, so you can mimic their style. Of course, whether you do that sincerely or ironically is entirely up to you.
wornfree.co.uk

Insert Coin
If you like to be identifiable as a game geek, but only to other game geeks, head to this arcade of gaming-related clothing. From *Assassin's Creed* to *Metal Gear Solid* and beyond, it offers T-shirts and other ephemera that reference classic games without shouting about it.
insertcoinclothing.com

HOW TO... BE A T-SHIRT DESIGNER

SPREADSHIRT
spreadshirt.co.uk
Upload your own designs to this T-shirt store and it'll put them on its virtual racks for other people to peruse and buy. Here's how to do it:

1 Choose your design. Already got one ready to go? Just pick your T-shirt style and upload the image to Spreadshirt's 'Create' section. If you're more of a wordsmith, try a less involved design using its text box.

2 If you're going the graphical route, bold designs with a limited colour palette are a good choice, so crack out your best software – Adobe Illustrator (from £8/month, creative.adobe.com) is ideal – and get to it.

3 Upload your design, set your price and start promoting your new range of apparel. But be warned: if you can't persuade any of your friends to buy it by filling their Facebook news feeds with links to your shop, T-shirt design may not be your new career. Good luck!

5-MINUTE HACKS

IF NOTHING ELSE, AT LEAST...

1

1 DEMOCRATISE YOUR PARTY PLAYLIST

Clearly you have the best musical taste of anyone at your party, but what if your guests don't agree? You let them vote for the next song...

Download Festify (US$free, Windows and Mac) from festify.com. Enter your Spotify Premium username and click 'start new party'.

Now open the browser on your phone and type 'festify.us'. Enter your six-digit code and join the party. You can now add songs, and your guests can vote for them.

If it's all gone a bit Mumford and you want to reassert control of your party, go to settings, click 'show password' and enter this in the 'enter admin mode' section. You'll now be able to skip, delete and pause tracks.

2 CONTROL YOUR PS4 WITH YOUR TV REMOTE

All you want to do is watch streaming vids, but your PS4 controller has naturally run out of juice or gone AWOL. Here's how to use your telly remote instead:

You need to enable HDMI-CEC on your TV. This has a different brand name depending on the manufacturer. For example, Samsung calls it Anynet+ and Philips calls it Easylink.

Once you've found out your HDMI-CEC equivalent, enable it in your TV's settings and in the PS4's ('Settings' > 'System' > 'Enable HDMI Device Link').

You'll now be able to use your TV remote's directional pad to browse your videos. If you're watching, a press of your controller's 'PS' button will now also take you straight to your PS4.

2

3 GO ON A SMARTPHONE DIET

You and your Android phone are best buddies, but sometimes you need to know when to unplug and maintain your other tech friendships. Let's introduce some QualityTime:

Download QualityTime ($free, Android). On its own this app will give you breakdowns of how long you're spending in each app, brutally exposing the extent of your Trivia Crack addiction.

Now go to ifttt.com/qualitytime and activate the QualityTime channel. This will give you access to various recipes, such as logging excessive smartphone binges on a Google Spreadsheet or Calendar.

To treat hardcore addiction set up a trigger, such as a notification when you exceed your daily time ration.

3

TUNE IN NEXT MONTH TO...
● Build your own Nest thermostat ● Survive (and maybe even enjoy) a wild camping trip ● Cook up a truly smokin' barbecue

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Stuff TOP TEN OF EVERYTHING

Smartphones 62
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Geek accessories, Games machines
Wearables & Smarthome 72
Best of the rest 73
Home computers, Sat-nav, Camcorders

For full reviews of every product in the top 10s, visit stuffmideast.com

HOT BUY

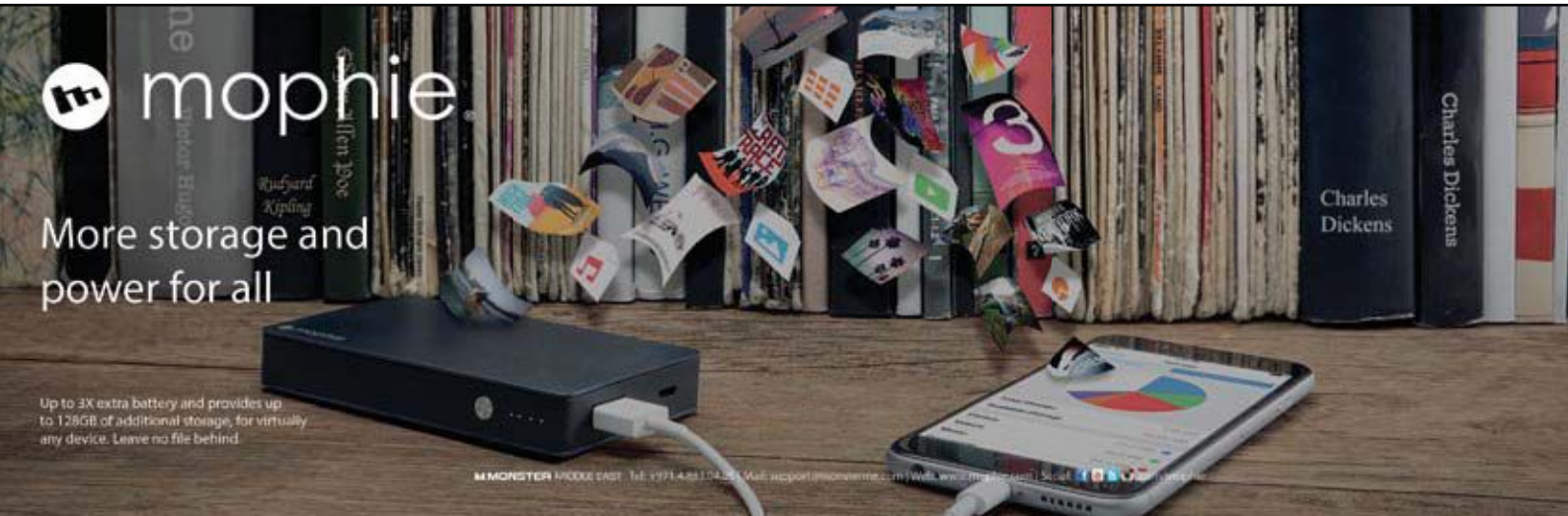
1 Samsung Galaxy S6

This is a new era for Samsung, with a smart upgrade that fixes not just things that were amiss in the Galaxy S5, but things that have plagued them for years. No plastic here: its front and back are super-tough Gorilla Glass 4, its sides aluminium. In terms of ergonomics and speaker quality, HTC still wins, but only just. And in the more important areas of camera performance, screen tech and raw power, the Galaxy S6 tramples its rival. We just wish it had a microSD slot.

STUFF SAYS
Samsung has proven its critics wrong – the Galaxy S6 is the new benchmark for flagship phones
from US$700 ★★★★★

2		**Samsung Galaxy S6 Edge** The Edge, with its wraparound screen, is the ultimate money-no-object phone. It's techier and beefier than its brother, but it's also a good deal pricier. Its curvy USP may be more about style than anything else, but come on, it's pretty darned cool.	from US$840 ★★★★★	BEST FOR CUTTING-EDGE GADGETEERS
3		**HTC One M9** This year's HTC One is not a full-on revolution, but it is a careful, considered refinement of one of the best phones ever, packing high-end specs into a premium design. The switch to a megapixel main camera results in beautifully detailed daytime shots.	US$750 ★★★★★	
4		**LG G3** LG surprises us again. There's barely a single thing wrong with the G3... and so, so much that's right. Upgrades range from sleeker back buttons to the bigger, better 2K screen and laser-assisted camera. And it still lasts 15 hours. How do they do it?	US$550 ★★★★★	
5		**Apple iPhone 6** With its slim, deeply attractive build and software overhaul, the iPhone 6 is the freshest-feeling iPhone in years. Its larger screen is big enough to be a useful improvement, with gorgeous colours, and this is Apple's best ever battery.	from US$650 ★★★★★	
6		**Samsung Galaxy Note 4** Samsung was first at the phablet game, and with the Note 4 it's still the best. The ace camera, Multi Window feature and pressure-sensitive S Pen make proper use of the extra screen real estate. Plus, it has the longest battery life of any 2K phone we've tested.	US$680 ★★★★★	
7		**OnePlus One** Believe the hype. To get one of the best smartphones on the planet you don't need to cough up a huge chunk of change. You just need an invite. In terms of design, performance, screen and battery life you simply can't get better than this anywhere near the price.	US$300 ★★★★★	BEST FOR SUPERPHONE VALUE
8		**Sony Xperia Z3 Compact** This is, without a shadow of a doubt, the best sub-5in Android phone around. The power of a full-size flagship, an excellent camera and an impressive battery life are all crammed into a device that's a pleasure to use no matter the size of your digits. Impressive stuff.	US$630 ★★★★★	BEST FOR DAINTY HANDS
9		**Sony Xperia Z3** The refined Xperia Z3 is the phone the Z2 should have been and every bit as good as that sounds. It's sleeker and easier to hold, but with the same stunning screen, camera and hi-res audio. Not to mention the incredible battery life and PS4 Remote Play.	US$730 ★★★★★	
10		**Google Nexus 5** Delivering top-end spec at a mid-range price, the new Nexus has a bigger 4.95in screen, faster processor and a satisfactory 8MP snapper. But the biggest improvement is its chocolatey-smooth Android KitKat 4.4 OS. Astounding value.	from US$480 ★★★★★	BEST FOR PRICE TAG

FOR THE FULL REVIEWS AND OUR SMARTPHONE BUYING GUIDE, VISIT STUFF.TV/ME



HOT BUY

1 Apple iPad Air 2

The iPad Air didn't really need to be thinner, but that doesn't mean 6.1mm isn't mighty impressive. This combines with reassuring weight and impeccable build quality to make this the most desirable tab on the planet. While the display is the same Retina resolution as before, clever screen tech brings the pixels closer to the surface, and the whole experience is even faster than before thanks to the new A8X chip. Basically it's the best tablet in the world made even better.

STUFF SAYS
Thinner, lighter and mightier: Apple's iron-fisted reign at the top of the tablet charts continues unabated
from US$500 ★★★★★

2	**Apple iPad Mini 2 With Retina Display** The iPad Mini 3 is out now but all it adds is Touch ID. The good news is that the Mini 2 is now down to US$300, which is frankly bargain-tastic. That's why the 'old' model stays in our Top 10 – if you're after a mini-tablet of real quality, your choice has just got easier.	US$300 ★★★★★	
3	**Samsung Galaxy Tab S 10.5** Samsung has blessed the Galaxy Tab with one of the best tablet screens we've ever laid eyes on, plus an impressive camera and some incredible stamina – but there are performance niggles and Apple's tablet app selection is still far superior.	US$490 ★★★★★	BEST FOR MAGAZINES AND MOVIES
4	**Microsoft Surface Pro 3** At last, Microsoft has delivered on the promise of the tablet-cum-laptop hybrid. It proves there's space in the world for a design that's more productive than an iPad or Galaxy Note, but easier to hump around than a traditional laptop.	from US$800 ★★★★★	BEST FOR USING ANYWHERE
5	**Google Nexus 9** The design isn't as pristine, but this is a real Android contender to rival the iPads. You get the new Android 5.0 Lollipop software, bags of power and a super-sharp display. With 12 hours of video play and two front-facing speakers, it'll be a great film buddy.	US$400 ★★★★★	
6	**Asus Transformer Pad** The Transformers have always been more about laptop relacement than tableteering, and this one is the laptopiest yet. A 2560x1600 screen, two-day battery life (with keyboard dock) and quad-core Tegra processor all work Android up into a frenzy.	US$700 ★★★★★	BEST FOR ALL-ROUND EXCELLENCE
7	**LG G Pad 8.3** Life's good for the LG team at the moment, with their G2 smartphone making a genuine impression. A good time, then, to bring out a decent tablet, sensibly pitching it out of the all-sewn-up Nexus 7 territory. Great 8.3in screen, quad-core power; merely OK price.	US$500 ★★★★★	
8	**Lenovo ThinkPad Tablet 2** You're a high flyer. You have work to do and neither iOS or Android has the oomph. You need the Windows 8 Pro-running Tablet 2. It lasts all day, is powerful enough for full-fat desktop software and with the US$80 keyboard dock it's an ultraportable laptop.	from US$705 ★★★★☆	BEST FOR DESKTOP VERSATILITY
9	**Asus Transformer Book T100** This 10.1in tab-and-dock combo has enough grunt to run full Win 8.1 thanks to Intel's new Baytrail CPU. The 1366x768 screen is a good'un, with crisp text, great contrast and colours that pop, while dual-band Wi-Fi and a day-long battery are also welcome.	from US$440 ★★★★☆	BEST FOR DESKTOP VERSATILITY
10	**Nvidia Shield Tablet** This really is the ultimate gaming tablet. The Shield's sheer power and gaming smarts are incredible, with a console-quality controller and the option of seamless streaming from your PC. All it needs now is more made-for-Shield games...lots more.	US$300 ★★★★☆	BEST FOR GAMING ON THE GO

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HOT BUY

1 Panasonic TX-P55VT65B

Wow. If Marty McFly jumped out from behind this set to reveal that he was taking it back to the future, we wouldn't bat an eyelid. Its picture is nothing short of exceptional, with rich colours, deep blacks and outstanding depth in 2D or 3D. It's packed with clever tech, from voice commands that actually work to multiple homescreens and smart apps. And it even sounds better than any flatscreen we've heard before. In short, it's the kind of TV you dream of. As we said: wow.

STUFF SAYS
The plasma-screened Panasonic VT65 is so good that you won't believe what you're seeing. Outstanding
US$3,275 ★★★★★

2	**Panasonic TX-P42GT60** Panasonic's replaced last year's brilliantly accomplished GT50 with the GT60 and guess what? It's brilliantly accomplished. But this time around it's even better online, even better in 3D, has an even better control app and is even better value. Outstanding.	US$1,630 ★★★★★	
3	**Philips 55PFL8008** Picture-wise this Philips LED set is nearly the equal of the brilliant Panasonic at No1, which is high praise indeed. It can't quite match it for smart content, but it does have Netflix and YouTube, plus a very special skill all of its own in the immersive Ambilight.	US$3,800 ★★★★★	BEST FOR PRETTY LIGHTS ON YOUR WALL
4	**Samsung UE46F7000** The F7000 might just be the sweetest spot in Samsung's 2013 range – the same spectacular performance as the F8000 series but without the show-off design and quite a bit less expensive. Great picture quality and slick online functionality in one box.	US$2,450 ★★★★★	
5	**LG 47LM960V** With seven pairs of 3D specs in the box – two of which allow for full-screen gaming – this passive 3D TV is great for social occasions. It's recently been updated with the Game World portal, featuring 2D and 3D games – some playable with LG's Magic Remote.	US$2,150 ★★★★★	BEST FOR 3D MOVIES WITH FRIENDS
6	**Sony KDL55W955** Sony claims its new 'wedge design' gives greater internal volume and lowers the centre of gravity. The excellent colours, motion and sound quality are all admirable, but for a flagship, it lacks a wow factor and is hindered by a lack of depth in its black levels.	US$2,500 ★★★★☆	
7	**Bang & Olufsen BeoVision 11** Five grand for a 40in TV might seem a trifle steep, but if that's small change to you the BeoVision 11 is a luxurious delight of design and 1080p picture quality. It also sounds better than any TV we've ever used, and has a built-in surround processor for adding 5.1.	US$4,995 ★★★★★	
8	**Samsung UE55F8000** Yep, the F8000 has just taken one hell of a fall from its previous position at the top of this tree. Has it suddenly got worse? No. But now that it's been tested against other 2013 sets, its picture flaws are more apparent. If not for its price it'd be higher, though.	US$3,700 ★★★★☆	BEST FOR FEASTING ON SMART TV
9	**LG 55LA860W** From its super-slim, near bezel-less design to its excellent picture and clever, app-stuffed smart TV hub, the 860W does many things right. Then again, it costs two grand, so it damn well should do. If you've got deep pockets, you could do a lot worse.	US$3,000 ★★★★☆	
10	**LG 55EA980** A TV with a twist – well a bend, actually. This beautiful OLED set's curve divides opinion – some find it immersive, others find it annoying – but boy does it have a great picture. It's preposterous price and lack of future-proofing 4K are the only things that let it down.	from US$9,600 ★★★★☆	

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BLU-RAY PLAYERS

HOT BUY 1		**Sony BDP-S6200** The new king of Blu-ray players is the perfect balance of price, performance and features. It even looks pretty if you like that sort of thing. On top of the usual smart services you get Sony's own brilliant Video Unlimited.	US$150 ★★★★★	BEST FOR ALL-ROUND AWESOMENESS
2		**Panasonic DMP-BDT230** A fine budget player with picture and sound quality that would grace many a more expensive model. It doesn't quite rival the Sony above for smart features but for pure Blu-ray watching it'll do you proud.	US$190 ★★★★★	BEST FOR BLU-RAY ON A BUDGET
3		**Marantz UD7007** Pricey like an Aston Martin is pricey and about as satisfying to own, this Marantz can play any disc you like, streams music at high-def resolutions and can withstand an earthquake. If you really, really take movies and music seriously, this is your player.	US$970 ★★★★★	BEST FOR THE ULTIMATE IN QUALITY

SPEAKER SYSTEMS

HOT BUY 1		**Sony BDV-N590** The biggest bargain in home cinema, the Blu-ray -packing N590 has a massive spec but a micro price. Picture and sound are excellent, Sony's smart services are immense and its stylish curves and touch-sensitive controls add a dash of premium quality.	US$490 ★★★★★	BEST FOR AWESOME ALL-IN-ONE VALUE
2		**Sonos Playbar** A characteristically Sonos take on the soundbar, the Playbar hooks up to your TV via its single optical input and fills your room with a big, detailed sound. And as with all Sonos kit, it can stream your own music files, Spotify and more wirelessly around the house.	US$920 ★★★★★	BEST FOR ALL-YOU-CAN STREAM MUSIC
3		**Yamaha YSP-3300** If you've got more money than space, send your butler out now for the 3300. This compact bar delivers a fantastically convincing virtual surround sound by bouncing audio off the walls, and it'll pass through 4K or 3D video to your TV via HDMI.	US$1,535 ★★★★★	BEST FOR SMALL-ROOM SURROUND

VIDEO STREAMERS

HOT BUY 1		**Sony SMP-N200** Sony's near clean-sweep of this page owes much to its fantastic smart TV roster, and this 1080p-capable box has 'em all. So you get iPlayer, Lovefilm and Sony's own Video Unlimited, plus the ability to stream your own files, and all for less than a (big) night out.	US$150 ★★★★★	BEST FOR SMARTING UP A DUMB TV
2		**Microsoft Xbox 360** So now we have all the deets of the next generation of consoles. The Xbox One will be more media-centric than ever before, but expensive. The PS4 still looks better, retains its music and movie skills and is cheaper. The battle, as ever, will rage...	from US$200 ★★★★★	BEST FOR MULTIMEDIA FUN
3		**Apple TV** We're still waiting on Apple's TV set, but this box is a good start. It can stream in 1080p, access Netflix and Youtube and opens up the riches of the iTunes store. It even makes a neat, dual-screen games machine when teamed with an iOS device.	US$120 ★★★★★	BEST FOR BIG-SCREEN IPAD GAMING

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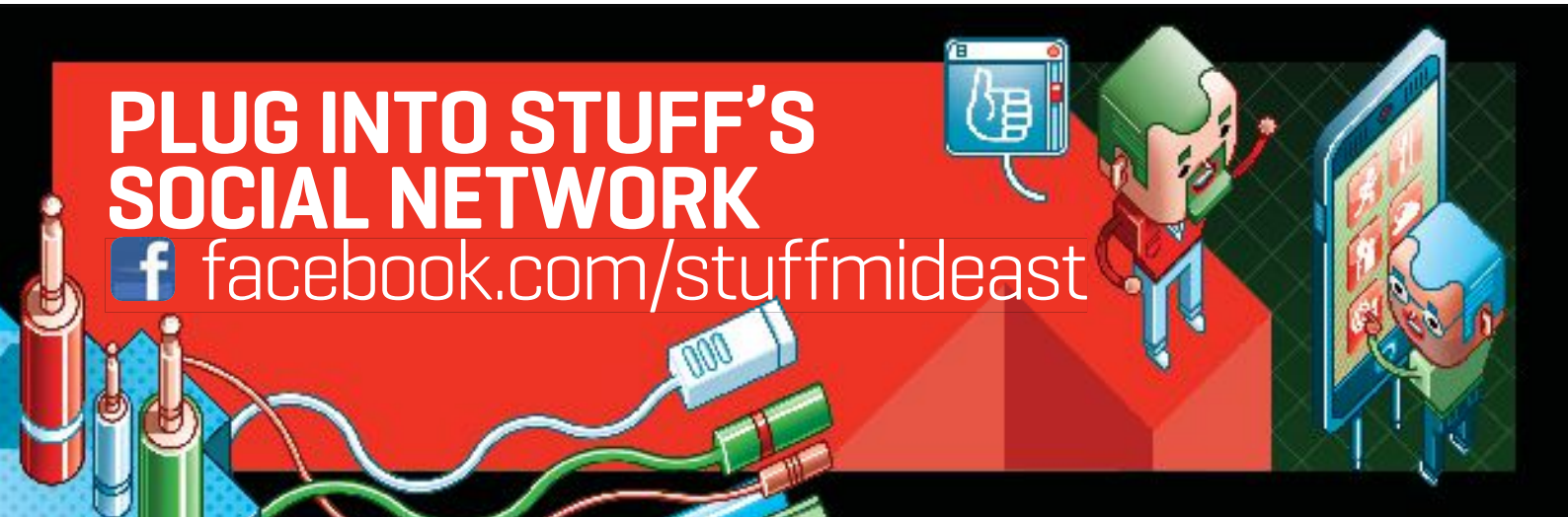

HOT BUY

1 Sonos multiroom system

Who needs to drill holes and re-plaster walls to get a multiroom music system? Not you. With Sonos, you can expand your set-up at your leisure – why not start with a budget Play:3, and add a bigger Play:5 later? Then maybe hook up a Connect to your existing hi-fi and router, then add speakers to a Connect:Amp in another room, or a SUB for a bass boost. You'll run out of rooms before you run out of options. For a further upgrade, the Arcam rSeries SonLink DAC works a treat with the Connect.

STUFF SAYS
Infinite music in every room without the need for custom installers? Sign us up now, please
from US$750 ★★★★★

2		**Naim Mu-so** US$1,400 for a wireless speaker?! Well yes, but what a wireless speaker it is. Naim has ploughed all of its high-end hi-fi experience into delivering a beautifully made, great-sounding device with AirPlay, Spotify Connect and aptX Bluetooth all on-board.	US$1,400 ★★★★★	BEST FOR ONE-BOX WI-FI HI-FI
3		**Monitor Audio Airstream S200** It may look a bit like a floppy skyscraper, but the Monitor Audio's Bluetooth-plus-AirPlay speaker makes a lot of sense, mostly because it takes up very little shelf/desk/table space but makes loads of lovely noise. It's a bit of a steal at £200.	US$300 ★★★★★	
4		**Cambridge Audio Go** There are loads of very cheap Bluetooth speakers out there, but we reckon it's worth spending that little bit more to get something that's really good – and that's the Go. It sounds awesome, it's really nicely built and its battery lasts a massive 18 hours.	US$180 ★★★★★	BEST FOR PICNIC PARTIES
5		**Bluesound multiroom System** Fancy a bit of Sonos-style multiroom but with better-than-CD-quality sound thrown in? You want a Bluesound. There are all-in-one speakers, adapters for your existing hi-fi, and a Vault that rips and stores all your CDs. All can handle high-resolution audio.	from US$620 ★★★★★	
6		**Libratone Zipp** A fuzzy, cylindrical, colourful Airplay dock that will deliver detailed, punchy 360-degree sound anywhere at all, thanks to a built-in battery that gives it four hours of outdoors life. Direct Wi-Fi skills free you from cables, routers, and everything but the boogie.	US$505 ★★★★★	BEST FOR AL FRESCO PARTIES
7		**Philips Fidelio E5** Setting up a 5.1 home theatre can be a daunting task. Figuring which speakers to pair with which receiver and laying down metres of unsightly cable. This wireless setup from Philips takes the mess our of surround sound, stripping out the clutter.	US$780 ★★★★★	
8		**Audio Pro Addon T10** Available in orange, white or black, the Addon T10 is a Bluetooth speaker that also has analogue inputs and a USB socket for charging your MP3 player. Sound-wise it's punchy and deep, with just a little too much bass. It sounds best in orange, obviously.	US$420 ★★★★★	
9		**Beats Pill** Beats transformed the headphone market, and now they're at it again with portable hi-fi. The Beats Pill impresses with simple controls, slender stylings and solid build. It goes impressively loud for its size, minus the booming base of its headphone counterparts.	US$200 ★★★★☆	BEST FOR BLASTING TUNES ON THE GO
10		**Sony NWZ-ZX1** The latest Walkman is a premium high-res audio player, and it's the best-sounding portable device we've ever heard: you'll notice parts of songs you never knew were there. We're not so keen on the high price and lack of expandable storage, though.	US$920 ★★★★☆	

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HOT BUY

1 AKG K451

They've actually been around a little while now, but what put the K451 on-ears back on to our radar was an official price drop from US$220 to US$130, and a real-world price of just US$100. For that money they're unbeatable – awesomely agile and punchy sound wrapped up in a subtly stylish and foldable design. Add both standard and three-button control cables for maximising compatibility and there's practically no excuse for not getting brilliant sound.

STUFF SAYS
Fantastic sound and great portability at an almost unbeatable price: the perfect PMP upgrade
US$100 ★★★★★

2		**Philips Fidelio M1 MkII** Your commute deserves a quality soundtrack, and second-generation Fidelio M1 headphones give you precisely that. There's oodles of detail to the sound and they punch harder than the Hulk. Beats and their ilk can't touch them.	US$280 ★★★★★	
3		**SoundMagic E10S** This is actually the third version of SoundMagic's awesome, affordable in-ears – not that you'd tell by looking. They sound even better, though: a little smoother and more refined, with tight, weighty bass. Plus there's now a mic and button for smartphone use.	US$40 ★★★★★	
4		**Sony MDR-EX650AP** If you're prepared to pay a little extra for your in-ears, these Sonys are even better than the SoundMagics above. The sound is that bit bigger, a little more detailed and a little more grown-up, and if you don't like the brass finish there's a silver version.	US$90 ★★★★★	
5		**Bose QuietComfort 25** The best kind of silence is the kind you then fill with sweet, sweet music, and that's what the QuietComfort 25s give you. The active noise-cancelling quells office hubbub, air-conditioning and aeroplane hum, and delivers cracking sound in its place.	US$260 ★★★★★	BEST FOR SHUTTING OUT THE WORLD
6		**Sol Republic Master Tracks** Really tough things are usually really ugly, which is why the lovely styling of the "virtually indestructible" Master Tracks headphones is so refreshing. Loud, punchy, fast and controlled, the sound is just as attractive as the design. Worth every penny.	US$200 ★★★★★	
7		**Bowers & Wilkins P3** Superb sound and a very solid and achingly stylish design make these the best portable on-ears around. The fact that two cables come in the box – one with a mic and remote for iPhones and one without – only sweetens the already candy floss-like deal.	US$270 ★★★★★	BEST FOR ON-EAR EXCELLENCE
8		**Sennheiser Momentum Black** Already known as the on-ears for the dapper man about town, Sennheiser has given its Momentum cans a cool new black and red paintjob. The specs stay the same; expect comfortable cushions and smooth-sounding audio.	US$440 ★★★★☆	BEST FOR QUALITY AND STYLE IN ONE
9		**Beats Studio (2013)** The original Beats noise-cancellers have been given a refresh, ditching the AAA batteries and getting a cosmetic overhaul. You can expect all the base Dre's cans are known for and a lot more punchy detail than the old ones. The foldy earcups make them great for travel.	US$300 ★★★★☆	BEST FOR BASE, BUCKETS OF IT
10		**Sennheiser CX 680i** Light, sweat-resistant and with a clever 'EarFin' to keep them in place, the CX 680i in-ears are the perfect partner for sporty music lovers. They sound impressive, too, and have an in-line mic. Try the PMX 680is (US$50) if you'd prefer a neckband design.	US$75 ★★★★☆	BEST FOR TUNE-LOVING FITNESS FANS

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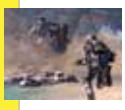
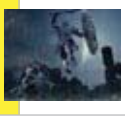
HOT BUY

1 The Last Of Us PS3/PS4

Now remastered for PS4, this is the best zombie-apocalypse game ever. It looks magnificent and plays even better, with a moving story and frights aplenty. The remastered version comes packed with extras including the excellent 'Left Behind' DLC that delves into Ellie's backstory as well as eight multiplayer maps from the Abandoned and Reclaimed Terrirories expansions. It's tough... but then a real-life zombie apocalypse would be. Think of this as essential prep.

STUFF SAYS
A captivating, terrifying triumph from start to finish, *The Last Of Us* is as good as current-gen gaming gets
★★★★★

2	**Forza Horizon 2** Xbox One This is everything an open-world driving game should be. There's loads to do and it captures the feeling of driving very fast better than any other racing game, to the point where *Forza Horizon 2* could soon eclipse its older brother once and for all.	★★★★★	
3	**Destiny** PS4/Xbox One This isn't for everyone, and those hoping for a *Halo*-style campaign may be disappointed. But in every other way, *Destiny* is on a bigger, far more multiplayer level, and with the added addictive quest for loot like *Diablo* – an irresistible combination.	★★★★★	
4	**FIFA 15** PS4/Xbox One If *FIFA 14* was Barcelona's tiki-taka – death by 1000 passes- then *FIFA 15* is Germany's more explosive, World-Cup-winning evolution of it. Harder, faster and stronger: this is a better reflection of modern football than ever before.	★★★★★	
5	**Tomb Raider** PC/PS3/Xbox 360 Yes, it's a Franchise Reboot, but the well-paced mixture of puzzles, action sequences, gun fights and stealth make the latest Lara Croft adventure an immersive, cinematic experience. Possibly the best fun we've ever had pretending to be a 21-year-old girl.	★★★★★	
6	 **Titanfall** Xbox One The biggest Xbox One game launch so far, this FPS robot-fighting sim came with high expectations... and just about lives up to them. It's a brilliant smash-fest, in a world where it rains massive 'Titan' robots to board and attack. The storyline is weak, though.	★★★★★	
7	**Mario Kart 8** Wii U Building upon lesser recent entries while adding flashy new twists and delightful physics-defying courses, *Mario Kart 8* is a rare Wii U highlight. Although single-player still lacks punch, multiplayer is endlessly entertaining: it's glossy and fluid throughout.	★★★★★	**BEST FOR** STUDENT HOUSES
8	**Grand Theft Auto 5** PS3/Xbox 360 The most fun you can have on a games console this year, GTA 5 looks better than ever, and it's satirical humour (on everything from social media to yoga) is enjoyable as ever. Why isn't it higher up? Because, er, it's technically banned in the UAE.	★★★★★	**BEST FOR** GREY-MARKET KICKS
9	**Batman: Arkham Origins** PC/PS3/Xbox 360/Wii U The third game in the *Arkham* series sees the caped crusader go back to the beginning for a not-so-merry Christmas in Gotham. New multiplayer mode and new gadgets freshen things up, but otherwise it's more of the same. For once that's no bad thing.	★★★★★	
10	 **Dark Souls II** PC/PS3/Xbox 360 You might never play a tougher game than this old-school action-RPG sequel, which drops you into the mystical land of Drangleic and lets you figure things out for yourself. Mostly by being killed... but that just makes it all the more rewarding when you get it right.	★★★★☆	**BEST FOR** A HARDCORE CHALLENGE

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HOT BUY NEW

1 Apple MacBook Pro 13in (2015)

Apple hasn't changed too many parts of the MacBook Pro for 2015. There's a fancy new trackpad and the latest generation of Intel CPUs, which deliver better stamina as well as a chunk more power. This is an incremental upgrade, but given how good the Pro already was, that's more than enough to keep it right at the top of the laptop honours list. If you need power as well as stamina and portability, this is one of the best laptops money can buy.

STUFF SAYS
If it ain't broke... it hasn't radically changed, but the Pro's performance and trackpad are top of its class
from US$1,300 ★★★★★

NEW 2	**Asus ZenBook UX305** Asus knows what it's doing. It knows that the Apple MacBook Air laptops are treading water and the ZenBook UX305 is pretty much everything the 2015 Air should have been, with its fetching aluminium design and as good a display as any US$1000 laptop.	from US$1,100 ★★★★★	
3	**Microsoft Surface Pro 3** At last, Microsoft has delivered on the promise of the tablet-cum-laptop hybrid. It proves there's space in the world for a design that's more productive than an iPad or Galaxy Note, but easier to hump around than a traditional laptop.	from US$930 (with Type Cover) ★★★★★	BEST FOR USING ANYWHERE
4	**Alienware 17** A brute of a machine in every way, the Alienware 17 weighs as much as four MacBook Airs and probably frags harder than 10 of them. Core i7 Haswell processor at 3.4GHz, Nvidia GeForce graphics, up to 32GB of RAM... Our trigger finger's already itching.	from US$2,150 ★★★★★	BEST FOR SERIOUS GAMERS
NEW 5	**Apple MacBook (2015)** This is no 'Air', nor 'Pro': a clear sign that this is what Apple sees as the future of the ultraportable laptop. And it's certainly very desirable: a 12in lean machine with a superb screen and haptic touchpad. However, the lack of ports can be frustrating.	from US$1,300] ★★★★★	
6	**Lenovo Yoga Pro 3** The third entry in the Yoga Pro line refines the laptop/tablet hybrid design with a power-sipping new Intel Core M processor plus slimness and style to make even the MacBook Air look worried. And you can stand it up like a tent. If you want.	US$1,900 ★★★★☆	
NEW 7	**Apple MacBook Air 13in (2015)** Apple is scraping by with pretty much the same Air design as before. You get a new processor, new connectors and slightly improved battery life, but still no Retina screen. However, if a portable road warrior is what you're after, this is still a great choice.	from US$1,000 ★★★★☆	
NEW 8	**Dell XPS 13** Dell's 2015 refresh to its XPS 13 Ultrabook is a revelation. It's practically bezel-less thanks to a 13.3in edge-to-edge "infinity" display that doubles 3200x1800 high resolution touchscreen. We're also totally smitten by the precision trackpad.	US$1,600 ★★★★☆	
NEW 9	**Acer Aspire Switch 10** With a 10.1in HD 1280x800 screen, Intel Atom innards, eight hours of battery and compact form factor, this flexible hybrid is for anyone who dreams of MacBook they can pull apart. Excellent for both writing your next novel or watching cat videos on YouTube.	US$410 ★★★★☆	
10	**HP Envy 6 Sleekbook** AMD Trinity processors power this Ultrabook alternative, making it cheaper and more battery-filled. The Envy 6 has a quality metal lid and rubberised base, 15.6in screen, and its 6GB RAM gives the 500GB hard drive faster boot times than a similar Intel core i3.	US$660 ★★★★☆	

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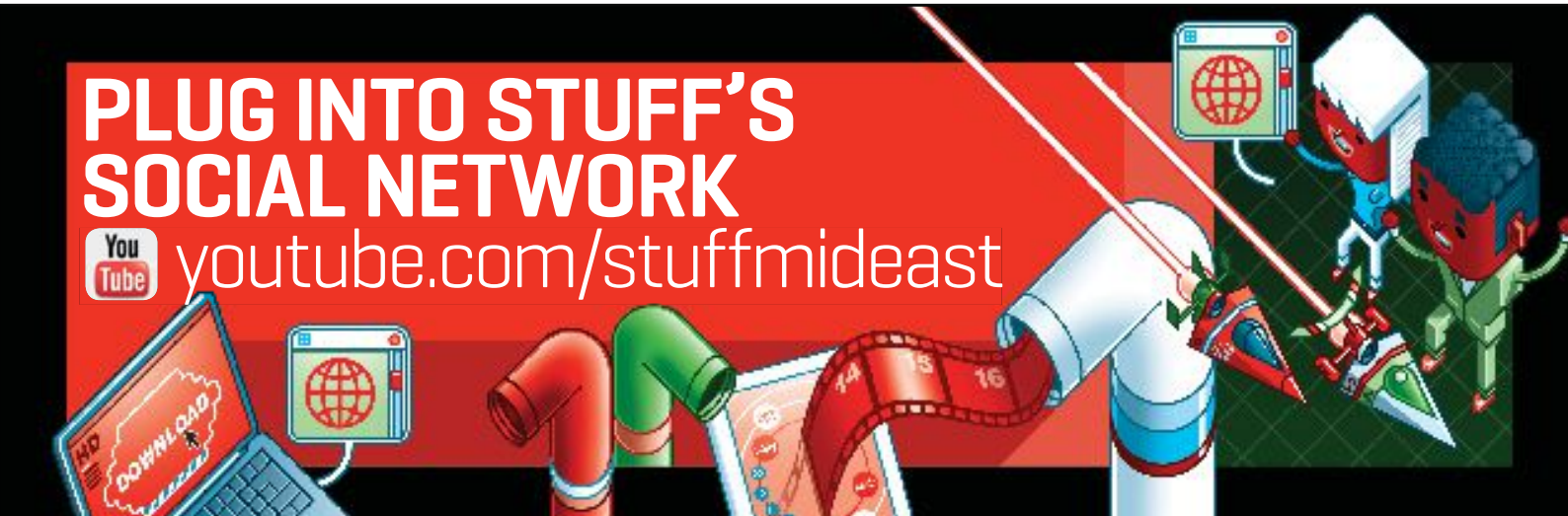

HOT BUY

1 Apple Watch

Apple's Watch is by no means the first smartwatch, but it is the most desirable. It's more luxurious (and yes, more expensive) than its rivals, its software is better thought out, and in the coming months you'll see an explosion of new apps for it. It also has some cracking fitness tech that monitors everything from your heart rate to your calories. And as gimmicky as it might be, we can't help but grin like a cheeky school kid when sending digital doodles to our mates.

STUFF SAYS
The Apple Watch is the classiest and cleverest smartwatch, with a platform teeming with possibility.
from US$350 ★★★★★

2		**Pebble Steel** The Steel keeps the straightforward looks, crisp display and five-day battery life that helped the standard Pebble win our hearts. But it holds more RAM, apps and customisable faces, and swaps the plastic for a stylish metal suit.	from US$200 ★★★★★	BEST FOR BATTERY LIFE
3		**Jawbone UP24** Now with Bluetooth for hassle-free syncing, the stylish UP24 is worth the extra £25 over the Jawbone Up. The app introduces new challenges and tracks your sleep patterns. It will also gently nudge you, if you're lazing around, to get back on the move.	US$100 ★★★★★	
4		**Fitbit Flex** The Flex delivers all of Fitbit's activity-tracking smarts but in a form factor that's less fiddly than its belt-clip counterparts. It's packed with Bluetooth, NFC, vibratamotor and an LED display. See also the new Fitbit Charge, with a full display, for £30 more.	US$70 ★★★★★	BEST FOR TRACKING YOUR LIFE
5		**Motorola Moto 360** With its iconic, head-turning design, this could be the first wearable you will want to wear. The Moto 360's our favourite and most comfortable Android Wear watch so far, but the battery might make you anxious and it's a few specs short of brilliance.	US$250 ★★★★★	
6		**Philips Hue** Pair these smart LED bulbs with 'recipes' on ifttt.com – set them to change colour with the weather or when it's time to run to the train. They also tie in with Philips' own Ambilight TVs, casting the colours from the screen across your entire room..	US$200 ★★★★☆	
7		**Roku Streaming Stick** 'Streaming Stick' tells you all you need to know, really: this is a stick, and it streams. It streams plenty, too – Netflix, iPlayer, Spotify, Sky Now and Sky Go to name a few. And unlike Chromecast, it's also a dab hand with your own video and music files. Lovely stuff.	US$50 ★★★★☆	
8		**LG G Watch R** This circular smartwatch won't win any beauty contests, but that's about its only flaw. The G Watch R's plastic OLED screen has deep blacks, sharp text and good visibility. Its battery easily lasts a day and a half, and using it is a smooth experience.	US$290 ★★★★☆	
9		**Google Chromecast** This USB memory-stick-sized cord-cutter is compatible with Netflix, YouTube, Google Play movies and BBC iPlayer: a cheap, simple way of getting web-sourced movies and shows onto your living-room TV.	US$25 ★★★★☆	
10		**Samsung Gear Live** Could it be fourth time lucky for Android Wear? A waterproof 1.63in Super AMOLED screen, a resting heart monitor and a growing selection of apps all say yes. Its pitiful one-day battery life lets it down, though.	US$200 ★★★★☆	

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GEEK ACCESSORIES

HOT BUY 1		**Amazon Kindle Paperwhite** There's a new Paperwhite out on the streets of the world, and it's brighter, whiter, faster and no more expensive. Contrast is improved, making your text blacker and the background less grey, while the 25% faster processor keeps things speedy.	US$180 ★★★★★	BEST FOR READING IN THE SUN
2		**Sennheiser X 320** These gaming cans – with a noise-cancelling mic, bass boost and controls for in-game and voice channels – are aimed at Xbox 360 users. Not of the Xbox persuasion? Look out for the U 320s, which will play nicely with your PS3, PC and Mac.	US$100 ★★★★★	BEST FOR GAMEWORLD IMMERSION
3		**Belkin WeMo** It started as an unassuming Wi-Fi-enabled socket that let you set lights or other mains-powered items on a schedule via an app. Now the range includes a motion sensor and a baby monitor (left), while a Hue-style lightbulb was announced at CES.	from US$50 ★★★★★	BEST FOR THINGTERNET FOR BEGINNERS
4		**3Doodler** Essentially a 3D printer nozzle in a pen. Sticks of plastic are fed through like a glue gun and extruded at 200°C into thin air, where it immediately cools and solidifies, letting you 'draw' 3D structures. Amazing, and we've only burnt ourselves once. Maybe twice.	US$100 ★★★★★	BEST FOR 3D SPACE CREATIVES
5		**DJI Phantom 2 Vision** Want to recreate those *Apocalypse Now* sequences at your local lido? This quadcopter offers great filming potential thanks to its 14MP/1080p HD camera and videolink, built-in GPS and ability to beam images to your smartphone from 300m away.	US$1,100 ★★★★☆	BEST FOR HIGH-FLYING FILMERS

GAMES MACHINES

HOT BUY 1		**Sony PlayStation 4** Sony's next-gen console is the best games machine on the planet. With whisper-quiet operation and a sleek form, it'll slot neatly into your lounge setup, but more importantly it offers bags of power, with full 1080p on all titles and not a whiff of lag.	US$435 ★★★★★	BEST FOR NEXT-GEN GRAPHICS
2		**Microsoft Xbox One** This is very different to the Xbox One of 2013. Most significantly, the unpopular Kinect feature is now out of the deal. Allowing Microsoft to drop the price and releasing enough extra power for developers to make their games look and play better.	US$400 ★★★★☆	
3		**Sony PlayStation Vita Slim** The Slim (aka PCH-2000) is comfier to hold than the original Vita, it lasts longer, it no longer relies on proprietary cables and the screen is an improvement... but Sony could have gone so much further, not least by adding more than 1GB of internal storage.	US$620 (approx) ★★★★☆	BEST FOR PORTABLE PLAYTIME
4		**Microsoft Xbox 360** Yes, it's been succeeded by the One, but the years have been kind to the 360. With an amazing catalogue of recent games that use its full potential, brilliant media streaming skills and a low, low price it's impossible not to recommend it to cash-strapped gamers.	US$250 ★★★★☆	BEST FOR BUDGET GAMING
5		**Nintendo 3DS XL** The 3D effect may be a gimmick that hasn't paid off, but put that to one side and the 3DS is still the king of the portable games machines. The XL is the biggest version yet, and there's now a massive catalogue of inventive dual-screen games to play.	US$180 ★★★★☆	

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SLRs

HOT BUY 1		**Olympus OM-D E-M1** The Olympus flagship is armed with the same excellent 16.3MP sensor as its predecessor the E-M5, but has an improved autofocus system, a startlingly good electronic viewfinder and masses of direct controls. Also look out for the E-M10.	US$1,200 (body only) ★★★★★	
2		**Canon EOS 700D** Look, it's a new Canon at No2. No, wait, it's the old one. Actually, it's kind of both. The 700D is a minor upgrade over the 650D, keeping the latter's 18MP sensor, flip-out touchscreen and autofocus during video and adding little beyond a new kit lens. It's still great though.	US$685 (body only) ★★★★★	BEST FOR ALL-ROUND VALUE
3		**Sony A7R** We love this camera. It's lightweight but tough and delivers results that outstrip pretty much any other compact system camera on the market. It has a huge full-frame 36.4MP sensor and noise-suppression. Your wallet might weep, but your photo album will sing.	US$2,300 (body only) ★★★★★	BEST FOR SHOOTING LIKE THE PROS
4		**Nikon D750** It's big and bulky, but otherwise this is one of the most comfortable and intuitive DSLRs money can buy. And with a handy tilt screen and some wireless connectivity features, there's none of the purist snootiness that we saw in the D810.	US$780 (body only) ★★★★★	
5		**Fujifilm X-T1** There's lots to love about this snapper, from its clever viewfinder and lightning-speed focus to the weatherproof body. One for the analogue lovers, it has actual buttons and dials with no touchscreen. The lack of in-cam image stabilisation is our only complaint.	US$1,900 (body only) ★★★★★	

COMPACT CAMERAS

HOT BUY 1		**Sony DSC-HX60** 2014's HX60 isn't a huge departure from its predecessor in terms of its build quality, ease of use, specifications and 30x zoom lens – all of which are excellent. What it does add is NFC and a newer Bionz X processor, making it a slightly nippier performer.	US$555 ★★★★★	
2		**Fujifilm FinePix X20** The X20 isn't all retro looks and no trousers. It excels in Advanced Auto mode and has manual controls and RAW shooting for creative days. The optical viewfinder, though small, is linked to the 4x zoom and frames well. All this, *and* it looks damn cool.	US$460 ★★★★★	
3		**Canon PowerShot S120** Replacing the S110, the S120 is a compact camera for DSLR users on their days off. Its 12.1MP stills, low-light prowess and useful long-exposure modes are welcome, while its slightly laggy lens-ring control and hit-and-miss Wi-Fi features take the shine off.	US$540 ★★★★★	
4		**Nikon Coolpix AW110** With a metallic body, sturdy locking mechanism and optional camo finish, our new favourite tough cam has got that whole military chic thing nailed. Its army – geddit? – of features include excellent 16MP stills, 1080p@30fps video and glove-friendly controls.	US$385 ★★★★★	BEST FOR ADVENTUROUS SNAPPERS
5		**Sony DSC-RX100** The 20MP RX100 is just what we're looking for in an advanced compact: pocketable with a huge 1in sensor which serves up great images. After something a bit different? Sony's crazy new lens-without-a-body, the QX100, has much of the same tech.	US$680 ★★★★★	BEST FOR PORTABLE POWER

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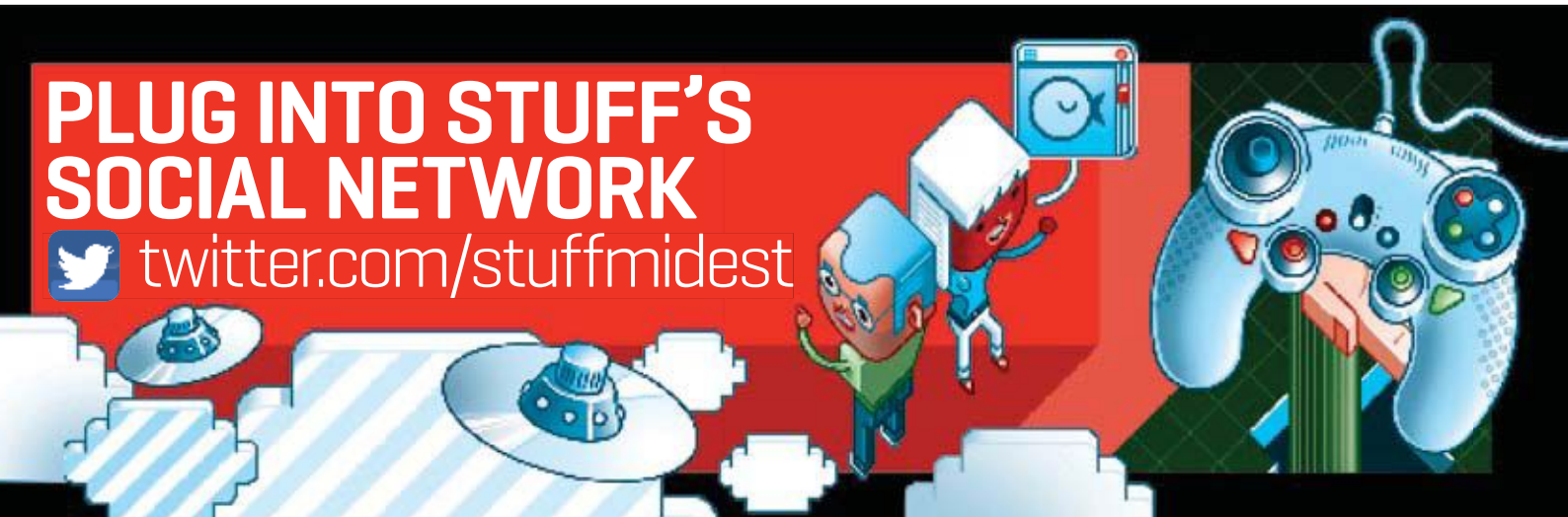

HOME COMPUTERS

HOT BUY 1		**Apple iMac** The latest iMac is thinner and more powerful than ever: Core i5 or i7 Ivy Bridge and at least 8GB RAM running the none-more-elegant OS X Mountain Lion. Apple has yet to embrace touchscreen tech, although a new Retina-screened iMac is rumoured.	from US$1,590 ★★★★★	BEST FOR ALL-ROUND BRILLIANCE
2		**Alienware X51** This PC is as happy sat by a TV as it is under a desk. It's the size of an Xbox 360 but it runs a whole lot faster – and is whisper-quiet. With a Core i5 Ivy Bridge processor, 8GB of RAM and the new 1GB Nvidia GTX 660 graphics card, it's got more welly than ever.	from US$1,300 ★★★★★	BEST FOR HARDCORE GAMERS
3		**Dino PC Mini Carnivore HTPC** At the size of a year's worth of *Stuffs*, the Dino is lounge-friendly indeed, while Blu-ray, near-silent operation, low power uptake and Xbox-quality gaming belie its diminutive size. Meanwhile, the addition of an Intel Core i5 3570K processor gives this Dino extra roar.	from US$915 ★★★★★	BEST FOR COMPACT POWER

SAT-NAV

HOT BUY 1		**TomTom GO 6000** The four-figure model name marks this an 'Always Connected' device with a SIM card for live traffic updates, while the '6' in the name refers to its crisp 6in, 800x480 screen. It's rather good, if huge. Smartphone-connected versions (600, 500, 400) are cheaper.	US$335 ★★★★★	BEST FOR TOTAL TRAFFIC KNOWLEDGE
2		**Google Maps Navigation** Apple's Maps app for iOS6 remains pretty, but flawed. With Google Nav now back in the iTunes Store, there really is one solid choice for both iOS and Android users and this is it. Street View, accurate public transport info, cycle maps and decent traffic warnings. Bingo.	US$free ★★★★☆	BEST FOR BUDGET TRAVELLERS
3		**Garmin nüvi 3490LMT** Slender and stylish, this posh-nav might look expensive but it comes with the major benefit of live traffic info – via a Garmin smartphone app – free for the lifetime of the device. Add pinch-to-zoom, 3D maps and photo-realistic junctions, and it's a win.	US$355 ★★★★☆	BEST FOR TRAVELLING WITH STYLE

CAMCORDERS

HOT BUY 1		**Sony HDR-CX410VE** Our choice for full-fat filming at non-professional prices, the Sony records razor-sharp footage at a TV-style 50fps, has a monster 55x zoom, a three-hour battery and image stabilisation that lets you run and shoot handheld simultaneously. Just don't trip up.	US$655 ★★★★★	BEST FOR TOP-QUALITY HOME MOVIES
2		**GoPro Hero3+ Silver Edition** You may well wonder why the flagship Black Edition of the Hero3+ isn't in this slot, but for our money the extras don't quite justify the extra expense. We reckon the Silver Edition is the current, umm, hero of the range, and a killer cam for your killer stunts.	US$465 ★★★★★	BEST FOR ACTION-JUNKIE FILMMAKERS
3		**Canon XA10** Canon's ultra-compact XA10 handles fine detail superbly due to its f/1.8 lens and 2.37MP chip. It might not look big enough to play with the big boys, but twin XLR inputs on its detachable handle give would-be filmmakers professional prowess straight out the box.	US$2,000 ★★★★★	BEST FOR SERIOUS SHOOTERS

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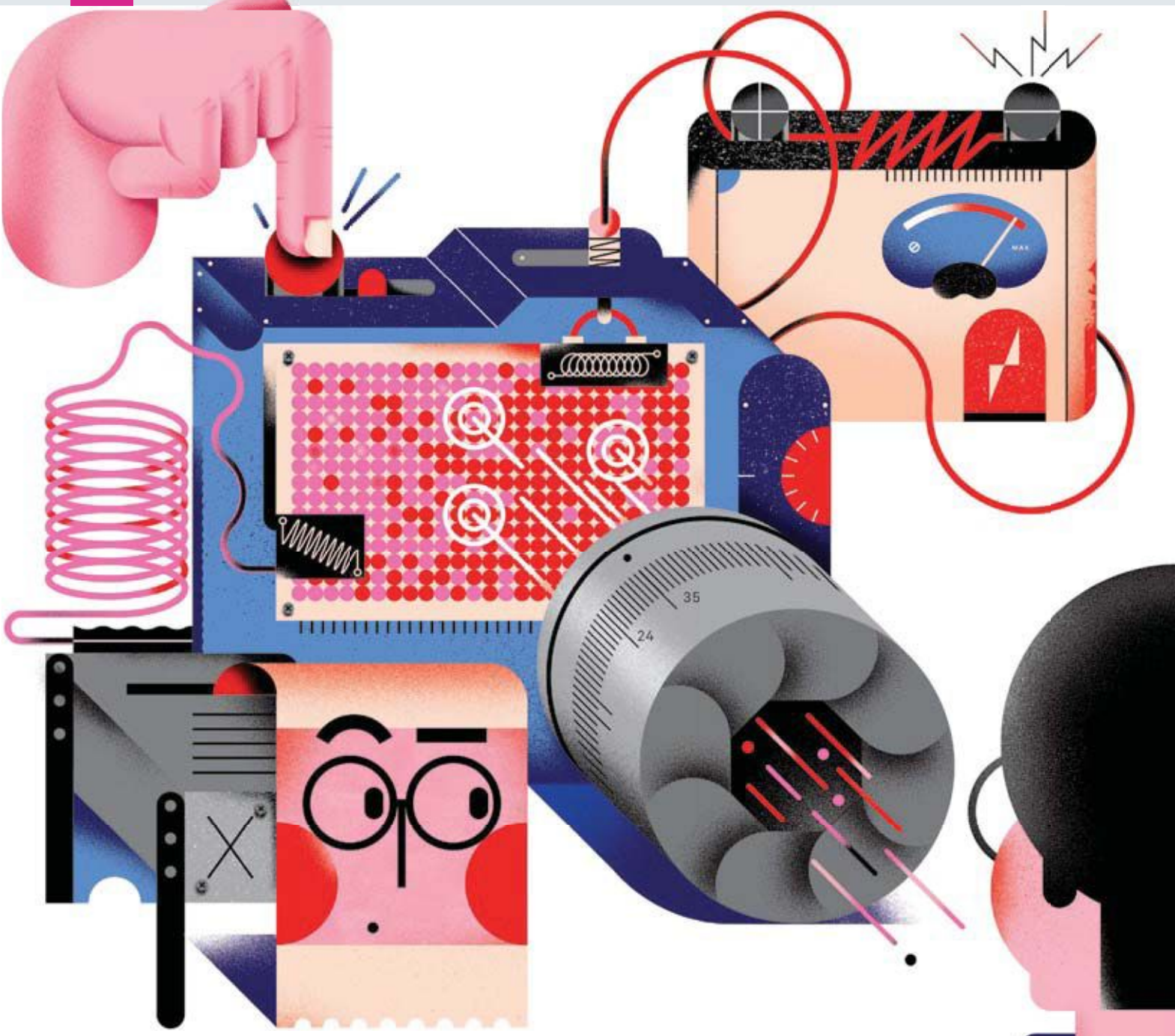

PERPETUAL MOTION PICTURES

You mean like *Van Helsing*? I'm pretty sure that only *seemed* to last forever. It did. But, like the film *Van Helsing*, there are some things that should not be. Concepts that should trip the big fusebox in the sky and make the universe go dark. Like a mini wind turbine attached to the front of an electric bicycle... or the idea that if time travel will ever exist, then it already exists, and so must never have existed. Shudder. A team at Columbia University is dabbling in similarly dubious territory, by inventing a camera that is powered by what it captures.

If vanity was an energy source, humans would be in a lot less trouble right now. Snarky species smackdown! No, not vanity, light. See, a camera sensor is made up of lots of photodiodes that turn light into an electrical signal; the camera's processor turns those signals into visual data. A solar panel, on the other hand, is made up of lots of photodiodes that turn light into electrical power. The Columbia Computer Vision Laboratory has built a video camera that flip-flops between photoconductive and photovoltaic modes so it can power its own image capture.

Holy continuous shooting! But to what end? Well, it's not for the Annie Leibovitzes of this world. Not yet, anyway— the Columbia continuo-cam takes one tiny, 30x40-pixel frame per second. But simultaneous powering and shooting is just showing off, really: the sensor could just as easily send energy to a battery for use at night, meaning you could have a compact camera (or a CCTV setup) that never runs dry. Which might mean we can all take three-week holidays without needing an adapter, or it might mean a surveillance network that never blinks. Fingers crossed!

[**Words** Fraser Macdonald **Illustration** Bratislav Milenkovic]

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